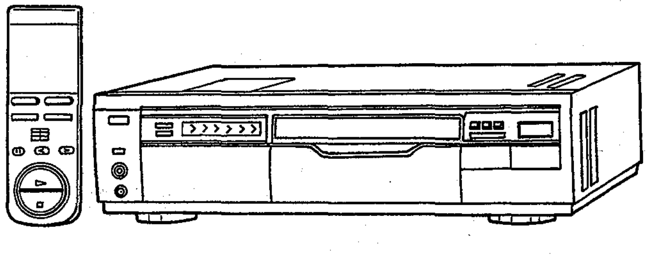
SONY

COLOUR VIDEO PRINTER

UP-2200P

SERVICE MANUAL



SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the condition of the monopole antenna (if any).
   Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement.

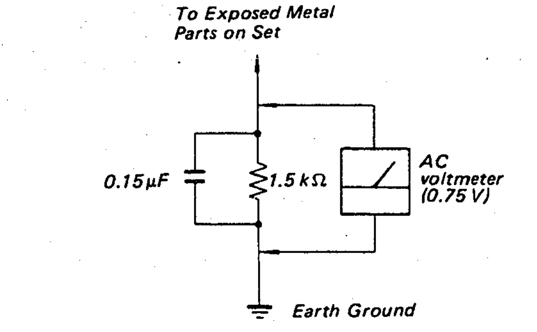


Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

TABLE OF CONTENTS

Section Title Page

1. GENERAL

1-1. Specifications 5
1-2. What is the Color Video Printer 6
1-3. Location and Function of Parts and Controls 8
1-4. Accessories 9
1-5. Screen Messages and Menus 10
1-6. Precautions 11
1-7. Connecting the Color Video Printer 12
1-8. Using the Remote Commander 13
1-9. Loading the Color Ribbon Cassette 15
1-10. Loading the Print Paper 16
1-11. Printing a Full-Size Image 17
1-12. Printing TV Broadcast Pictures 19
1-13. Making a Variety of Printouts 20
1-14. Printing with a Date 25
1-15. Printing with a Title 26
1-16. Setting the Print Quantity 27
1-17. Adjusting the Picture Quality of Printouts 27
1-18. Storing one Image while Printing Another 29
1-19. About Capture (memory) Mode 30
1-20. Error Messages 31
1-21. If Paper Jams 32

2. DISASSEMBLY

2-1. Cabinet Section Removal 33
2-2. Rear Frame and Power Supply Block Removal 33
2-3. VA-69 Board Removal 34
2-4. MC-80 Board Removal 34
2-5. Mechanism Section Removal 35

3. MECHANISM SECTION REPLACEMENT

3-1. Head Driving Motor Replacement 36
3-2. Limiter Assembly Replacement 37
3-3. Platen Driving Motor Replacement 38
3-4. Worm Wheel Replacement 39
3-5. Brake Replacement 40
3-6. Change Gear Replacement 40
3-7. Cam Gear and Head Idler Replacement 41
3-8. Idler Gear Replacement 42
3-9. Paper Feed Roller Assembly Replacement 42
3-10. Paper Ejecting Roller Replacement 43
3-11. Platen Replacement 44

Section Title Page

4. EACH SENSOR FUNCTION

4-1. Each Sensor Position 45

5. DIAGRAMS

5-1. Circuit Boards Location 46
5-2. Overall Block Diagram 47
5-3. Video (Analog) Block Diagram 51
5-4. Video (Digital) Block Diagram 55
5-5. Head Control Block Diagram 58
5-6. System Control Block Diagram 61
5-7. Power Block Diagram 63

6. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

6-1. Frame Schematic Diagram 65
6-2. Printed Wiring Boards and Schematic Diagrams 69
- VA-69 Board 70
- MC-80 Board 93
- HC-10 Board 119
- SY-50, SW-4, SW-5, SW-6, SW-7, SW-8, SW-9, SW-10, PTC-8, PTC-9, PTC-10, PTC-11, S-12 Boards 127
- KY-12, CK-51, CK-54, CK-55, PW-97 Boards 135
- Power Block Board 142

6-3. Semiconductors 148

7. EXPLODED VIEWS

7-1. Cabinet Assembly 150
7-2. Chassis Assembly 151
7-3. Mechanism Chassis Assembly (1) 152
7-4. Mechanism Chassis Assembly (2) 153
7-5. Mechanism Chassis Assembly (3) 154

8. ELECTRICAL PARTS LIST 155

Section Title Page

9. ADJUSTMENTS

9-1. Preparations Before Adjustments ···· 177
  9-1-1. Equipments to be Used ···· 177
  9-1-2. Connecting the Equipments ···· 177
  9-1-3. Checking the Input Signal ···· 178
  9-1-4. Test Mode ···· 179
9-2. Power Supply Section Adjustments ···· 180
  1. 5V Voltage Adjustment (Power supply block) ···· 180
  2. 12V System Input Voltage Adjustment (Power supply block) ···· 180
  3. Power Supply Voltage Checks (Power supply block) ···· 180
  4. Head Power Supply Adjustment (Power supply block) ···· 180
  4-1. 3V Reference Voltage Adjustment ···· 180
  4-2. Minimum and Maximum Head Voltage Values Adjustments ···· 180
  5. Head Voltage Adjustment (Power supply block) ···· 181
9-3. Mechanism Block and System Control Circuit Adjustments ···· 182
  1. Replacing the Thermal Head ···· 182
  2. Head End Point Position Check ···· 182
  3. Ribbon Code Sensor Adjustment (SY-50 board) ···· 183
  4. Paper Set Sensor DNP Adjustment (SY-50 Board) ···· 183
  5. FG Sensor Adjustment (SY-50 Board) ···· 184
  6. Line Pulse Adjustment (SY-50 board) ···· 184
9-4. Video Circuit Adjustment ···· 185
  1. THRU VIDEO Output Level Adjustment (VA-69 board) ···· 185
  2. THRU Y Output Level Adjustment (VA-69 Board) ···· 185
  3. THRU CHROMA Output Level Adjustment (VA-69 board) ···· 185
  4. Y/C Mix Ratio Adjustment (VA-69 board) ···· 186

Section Title Page

  5. Y/C Separation Y Level Adjustment (VA-69 board) ···· 186
  6. Y/C Separation CHROMA Level Adjustment ···· 187
  7. Decoder Free-run Frequency Adjustment (VA-69 board) ···· 187
  8. Sync Generator Free-run Frequency Adjustment (VA-69 board) ···· 187
  9. INT Sync Generator FH ERROR Adjustment (VA-69 board) ···· 187
  10. AFC Error Adjustment (VA-69 board) ···· 187
  11. AFH Phase Adjustment (VA-69 board) ···· 188
  12. U Adjustment (VA-69 board) ···· 188
  13. Decoder HUE/COLOR Adjustment (VA-69 board) ···· 189
  13-1. Decoder HUE Adjustment ···· 189
  13-2. Decoder Color Adjustment (VA-69 board) ···· 189
  14. Decoder Output Level Adjustment (VA-69 board) ···· 190
  15. AGC Level Adjustment (VA-69 board) ···· 190
  16. CHROMA UP Adjustment (VA-69 board) ···· 191
  17. Red Pedestal Level Adjustment (VA-69 board) ···· 191
  18. Blue Pedestal Level Adjustment (VA-69 board) ···· 192
  19. Green Pedestal Level Adjustment (VA-69 board) ···· 192
  20. Green Bright Level Adjustment (VA-69 board) ···· 193
  21. Green Picture Level Adjustment (VA-69 board) ···· 193
  22. S/V Ratio Adjustment (VA-69 board) ···· 194
  23. Black/White Balance and Carrier Balance Adjustments (VA-69 board) ···· 194
  24. Burst Level Adjustment (VA-69 board) ···· 195
  25. B–Y, R–Y Level Adjustments (VA-69 board) ···· 195
  26. Chroma Level Adjustment (VA-69 board) ···· 195
  27. Burst Position Adjustment (VA-69 board) ···· 196
  28. OSC Adjustment (MC-80 board) ···· 196
  29. G Channel D/A Output Adjustment (MC-80 board) ···· 197
  30. Memory Signal Level Adjustment (VA-69 board) ···· 197
9-5. Arrangement Diagram for Adjustment Parts ···· 198

SECTION 1
GENERAL

This section is extracted from instruction manual.

1-1. SPECIFICATIONS

Printing system	Sublimation heat transfer printing
Number of picture elements	540 (V) × 700 (H) (for full-size printout)
Printing size	76 × 100.5 mm (3 × 4 inches)
Total gradation	256 levels (8 bits) each for R, G, and B
Printing time	Approximately 70 seconds
TV signal	PAL color system
Input/output connectors	VIDEO (PAL composite video signal) input BNC connector × 1 (rear)/ Phono connector × 1 (front) 1 Vp-p, 75 ohms (unbalanced), sync negative Y/C (separate luminance (Y) and chrominace (C) signals) input Mini DIN 4-pin connector × 2 (rear and front) automatically selectable Y: 1 Vp-p, 75 ohms (unbalanced), sync negative C: 0.3 Vp-p (color burst), 75 ohms (unbalanced) VIDEO (PAL composite video signal) output BNC connector × 1 1 Vp-p, 75 ohms (unbalanced), sync negative Y/C (separate luminance (Y) and chrominance (C) signals) output Mini DIN 4-pin connector × 1 Y: 1 Vp-p, 75 ohms (unbalanced), sync negative C: 0.3 Vp-p (color burst), 75 ohms (unbalanced)
Color ribbon and print paper	Color ribbon used exclusively for UP-2200P Print paper used exclusively for UP-2200P (100 × 140 mm (4 × 5$^{5}/_{8}$ inches) sheets)
Power consumption	120 W (in printing), 20 W (not in printing)
Power requirements	220 – 240 V AC, 50/60 Hz
Operating temperature	5°C to 35°C (40°F to 95°F)
Operating humidity	30% to 80%
Dimensions	Approx. 430 × 109 × 375 mm (w/h/d) excluding protruding parts (17 ×4$^{3}/_{8}$ × 14$^{7}/_{8}$ inches)
Weight	Approximately 8.3 kg. (18 lbs 5 oz)
Accessories supplied	Paper tray (1) Video printing pack (1) Remote commander RMT-7 (1) Size AA (R6) batteries (2) AC power cord (1)
Optional supplies	Video printing packs VPM-30STA, VPM-90STA White sticker printing pack VPM-30WSA

Design and specifications subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

1-2. WHAT IS THE COLOR VIDEO PRINTER

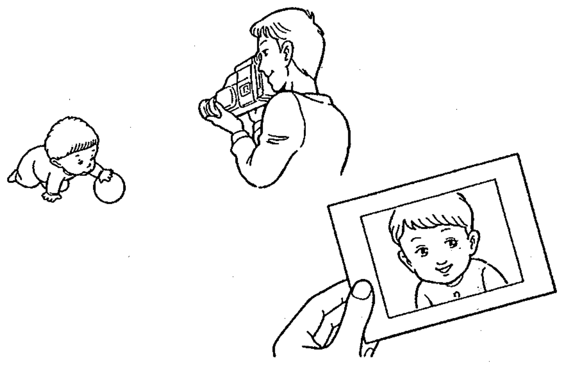
What can the printer do

With the color video printer, you can print the pictures taken with PAL video equipment and the PAL pictures broadcast on TV. Operation is very simple. Just press the CAPTURE button to store the image you want to print just as you would press the shutter when you take a photo. Then press the PRINT button to get a natural-colored, vivid printout.

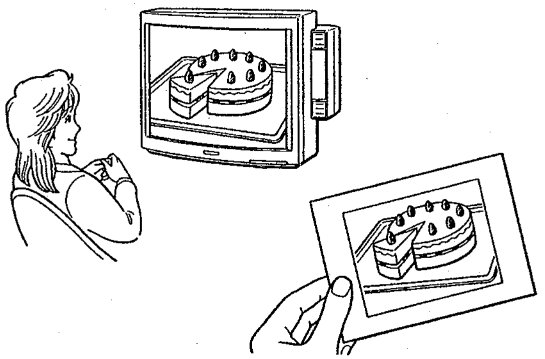
For printing, refer to "Printing a Full-Size Image" on page 30 (E).

Note
The UP-2200P is compatible with the PAL video sources. You cannot print the SECAM TV programs in France directly.

Printing pictures played back on video equipment



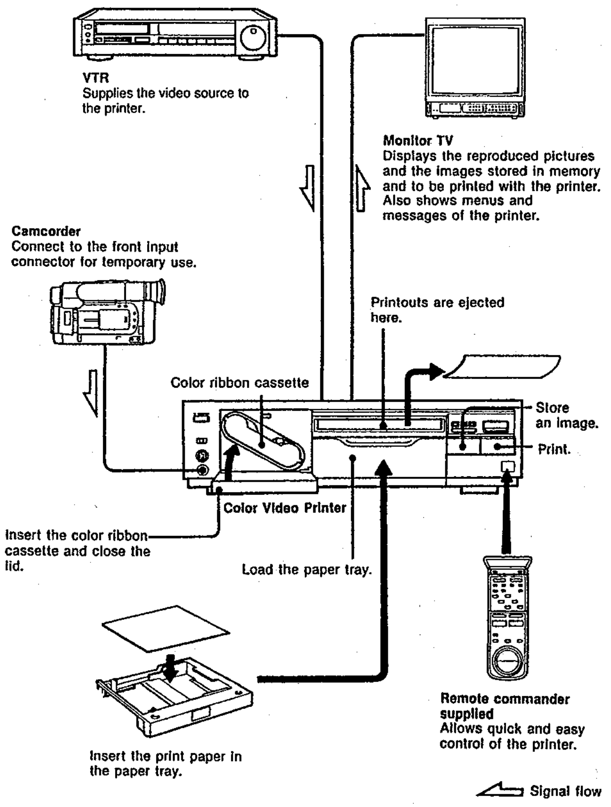
Printing TV broadcast pictures



How does the printer work

Connect the video source (VTR, camcorder, or laser disc player, etc.) and the video display (TV or monitor) to the printer. Use the devices equipped with VIDEO (BNC type) and/or Y/C (mini DIN 4-pin type) input/output connectors. You can connect a video device with a phono-type VIDEO connector to the front VIDEO input, but cannot use the devices with only aerial connectors.

For connection, refer to "Connecting the Color Video Printer" on page 18 (E).


VTR
Supplies the video source to the printer.
Monitor TV
Displays the reproduced pictures and the images stored in memory and to be printed with the printer. Also shows menus and messages of the printer.
Camcorder
Connect to the front input connector for temporary use.
Printouts are ejected here.
Color ribbon cassette
Store an image.
Print.
Color Video Printer
Insert the color ribbon cassette and close the lid.
Load the paper tray.
Insert the print paper in the paper tray.
Remote commander supplied
Allows quick and easy control of the printer.
Signal flow

Printing TV broadcast pictures only
Only a TV with VIDEO (BNC type) or Y/C (mini DIN 4-pin type) input/output connectors can be used. For details, refer to "Printing TV Broadcast Pictures" on page 34 (E).

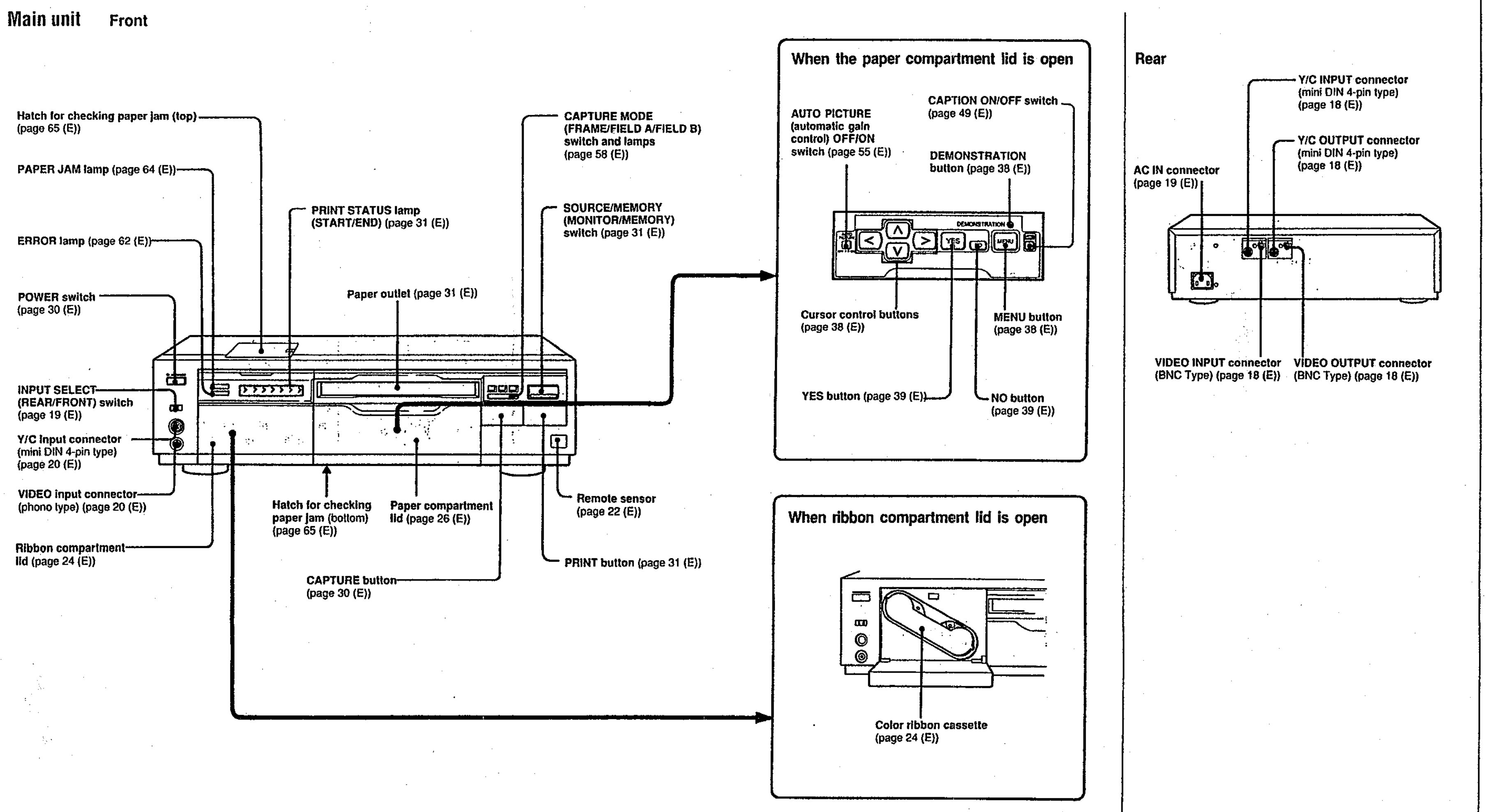
What types of printouts can the printer make

With the color video printer, you can make a variety of printouts.

Basic printout in full size	Printout of the same image in 1/4 size or 1/16 size	Printout of different images in 1/4 size or 1/16 size		Printout of strobe images in 1/4 size or 1/16 size	Printout with multiple insets	Printout with a caption
An image from the video equipment is printed in full size. (page 30 (E))	Four of the same images, each in 1/4 size, are printed with white divisions. (page 40 (E))	Four different images, each in 1/4 size, are printed without white divisions. (page 42 (E))		Four strobe images (sequential views of a moving object), each in 1/4 size, are printed without white divisions. (page 44 (E))	A basic printout is printed with multiple insets of 1/4-size and/or 1/16-size images. (page 46 (E))	A basic printout is printed with a date. (page 48 (E))
						Happy birthday! 7.4 92
	Sixteen of the same images, each in 1/16 size, are printed with white divisions. (page 40 (E))	Sixteen different images, each in 1/16 size, are printed without white divisions. (page 42 (E))		Sixteen strobe images, each in 1/16 size, are printed without white divisions. (page 44 (E))		A basic printout is printed with a title of up to 40 letters, numbers, or marks. (page 50 (E))

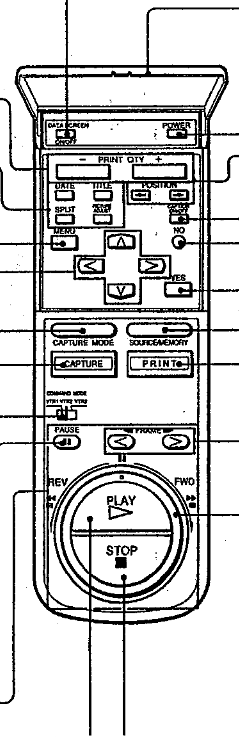
1-3. LOCATION AND FUNCTION OF PARTS AND CONTROLS

For explanation of the use of each part, refer to the pages indicated in ( ).


Main unit
Front
Hatch for checking paper jam (top) (page 65 (E))
PAPER JAM lamp (page 64 (E))
ERROR lamp (page 62 (E))
POWER switch (page 30 (E))
INPUT SELECT (REAR/FRONT) switch (page 19 (E))
Y/C input connector (mini DIN 4-pin type) (page 20 (E))
VIDEO input connector (phono type) (page 20 (E))
Ribbon compartment lid (page 24 (E))
PRINT STATUS lamp (START/END) (page 31 (E))
Paper outlet (page 31 (E))
Hatch for checking paper jam (bottom) (page 65 (E))
Paper compartment lid (page 26 (E))
CAPTURE button (page 30 (E))
CAPTURE MODE (FRAME/FIELD A/FIELD B) switch and lamps (page 58 (E))
SOURCE/MEMORY (MONITOR/MEMORY) switch (page 31 (E))
Remote sensor (page 22 (E))
PRINT button (page 31 (E))
When the paper compartment lid is open
AUTO PICTURE (automatic gain control) OFF/ON switch (page 55 (E))
CAPTION ON/OFF switch (page 49 (E))
DEMONSTRATION button (page 38 (E))
DEMONSTRATION
YES
MENU
Cursor control buttons (page 38 (E))
MENU button (page 38 (E))
YES button (page 39 (E))
NO button (page 39 (E))
When ribbon compartment lid is open
Color ribbon cassette (page 24 (E))
Rear
AC IN connector (page 19 (E))
Y/C INPUT connector (mini DIN 4-pin type) (page 18 (E))
Y/C OUTPUT connector (mini DIN 4-pin type) (page 18 (E))
VIDEO INPUT connector (BNC Type) (page 18 (E))
VIDEO OUTPUT connector (BNC Type) (page 18 (E))

Remote commander

The buttons and switches on the commander have the same function as those with the same names on the unit. With the remote commander, you can also control the tape transport of Sony video equipment.


DATA SCREEN ON/OFF
POWER
PRINT QTY
DATE
TITLE
POSITION
SPLIT
PICTURE ADJUST
CAPTION ON/OFF
MENU
NO
YES
CAPTURE MODE
SOURCE/MEMORY
CAPTURE
PRINT
COMMAND MODE
VTR1 VTR2 VTR3
PAUSE
FRAME BY FRAME
REV
FWD
PLAY
STOP

DATA SCREEN ON/OFF button
When you want to see the image hidden behind the screen messages, press this button to erase the screen messages. You operate the printer in the same way, whether or not the messages appear. (Screen menus cannot be erased.)

PRINT QTY (quantity) –/+ buttons
Press the – button to decrease the print quantity and the + button to increase it.

Sub-menu buttons (DATE, TITLE, SPLIT and PICTURE ADJUST)
Displays sub-menus immediately on the screen.

MENU button

Cursor control buttons

CAPTURE MODE switch

CAPTURE button

COMMAND MODE switch
You can control Sony video equipment:
VTR1: Sony Beta VTR
VTR2: Sony 8mm VTR and camcorder
VTR3: Sony VHS VTR
Depending on the model, some functions cannot be controlled.

PAUSE button

Tape transport control buttons
Controls the tape transport of the video equipment.

PLAY button

STOP button

Cover

POWER switch

POSITION ←/→ buttons
Move the cursor to the desired position in the TITLE menu.

CAPTION ON/OFF switch

NO button

YES button

SOURCE/MEMORY button

PRINT button

Frame-by-frame buttons

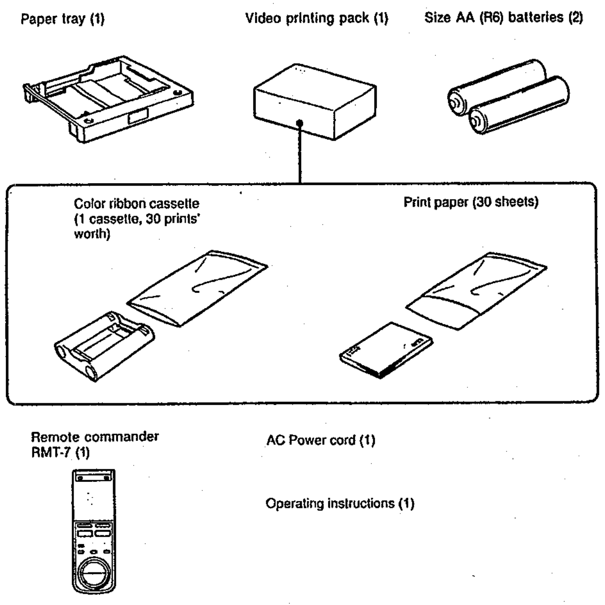
Shuttle ring
In the stop mode:
Turn to the extreme right and release for fast forward, turn to the extreme left and release for fast rewind.
In the playback and pause modes:
Turn clockwise for FWD playback and counter-clockwise for REV playback. Depending on the angle, the speed varies.
Turn to the extreme right for FWD picture search and to the extreme left for REV picture search.

1-4. ACCESSORIES

Supplied accessories

The printer is packed together with the following accessories. Check that nothing is missing from your package.

Notes
- Retain the original carton and packing materials in case you have to transport this unit in the future.
- Retain the original bags containing print paper and color ribbon. They are the ideal containers for storing partially used print paper and color ribbon for an extended period of time.


Paper tray (1)
Video printing pack (1)
Size AA (R6) batteries (2)
Color ribbon cassette (1 cassette, 30 prints' worth)
Print paper (30 sheets)
Remote commander RMT-7 (1)
AC Power cord (1)
Operating instructions (1)

Optional accessories (video printing packs)

You need print paper and color ribbon cassette for printing. The print paper and color ribbon cassette are not re-usable. Once they are used, replace with new ones. Video printing packs containing print paper and color ribbon cassette are available separately.

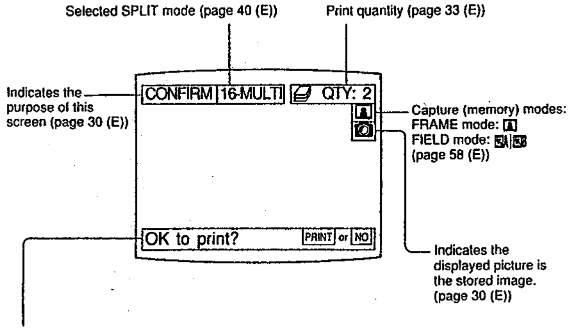
Video printing pack VPM-30STA
(One cassette of color ribbon and 30 sheets of regular print paper for 30 prints)
Video printing pack VPM-90STA
(One cassette of color ribbon and 90 sheets of regular print paper for 90 prints)
White sticker printing pack VPM-30WSA
(One cassette of color ribbon and 30 sheets of sticker print paper for 30 prints)

Note
Use the video printing packs recommended for this printer only. If you use different types of printing packs, printing may not be made properly or malfunctions may occur.

1-5. SCREEN MESSAGES AND MENUS

Screen messages

Screen messages show you the present status of the printer and suggest the next step of operation.
Menus on the screen guide you through advanced operations such as making a variety of printouts, adjusting color, and setting print quantity.


CONFIRM
16-MULTI
QTY: 2
OK to print?
PRINT or NO

Selected SPLIT mode (page 40 (E))

Print quantity (page 33 (E))

Indicates the purpose of this screen (page 30 (E))

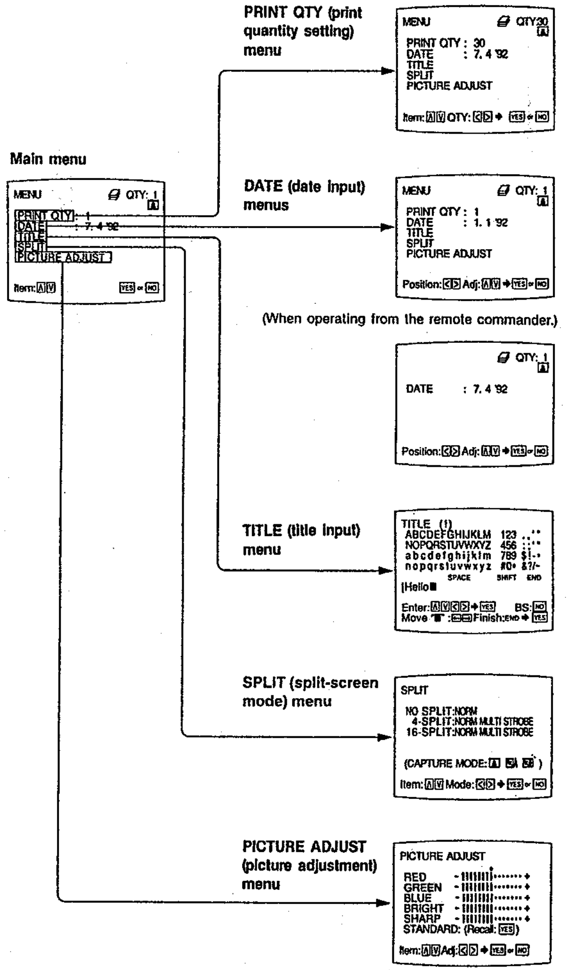
Capture (memory) modes:
FRAME mode: 🄰
FIELD mode: ▨ ▨
(page 58 (E))

Indicates the displayed picture is the stored image. (page 30 (E))

Indicates the next or possible operations:
OK to print? PRINT or NO
Press CAPTURE now. NO
Or, indicates the present status of the printer:
Printing . . .
Printing is completed.
etc.

Menus

The menus for advanced operations have a tree structure.


Main menu
MENU
QTY: 1
PRINT QTY : 1
DATE : 7. 4 '92
TITLE
SPLIT
PICTURE ADJUST
Item: ∧ ∨
YES or NO
PRINT QTY (print quantity setting) menu
MENU
QTY30
PRINT QTY : 30
DATE : 7. 4 '92
TITLE
SPLIT
PICTURE ADJUST
Item: ∧ ∨ QTY: < > ➔ YES or NO
DATE (date input) menus
MENU
QTY: 1
PRINT QTY : 1
DATE : 1. 1 '92
TITLE
SPLIT
PICTURE ADJUST
Position: < > Adj: ∧ ∨ ➔ YES or NO
(When operating from the remote commander.)
QTY: 1
DATE : 7. 4 '92
Position: < > Adj: ∧ ∨ ➔ YES or NO
TITLE (title input) menu
TITLE (1)
ABCDEFGHIJKLM 123
NOPQRSTUVWXYZ 456
abcdefghijklm 789 $!-
nopqrstuvwxyz #0 &?/-
SPACE SHIFT END
Hello
Enter: ∧ ∨ < > ➔ YES BS: NO
Move "■" : Finish: END ➔ YES
SPLIT (split-screen mode) menu
SPLIT
NO SPLIT:NORM
4-SPLIT:NORM MULTI STROBE
16-SPLIT:NORM MULTI STROBE
(CAPTURE MODE:)
Item: ∧ ∨ Mode: < > ➔ YES or NO
PICTURE ADJUST (picture adjustment) menu
PICTURE ADJUST
RED - +
GREEN - +
BLUE - +
BRIGHT - +
SHARP - +
STANDARD: (Recall: YES)
Item: ∧ ∨ Adj: < > ➔ YES or NO

1-6. PRECAUTIONS

On safety

- Operate the printer on 220–240 V AC, 50/60 Hz only.
- Be careful not to set or drop any heavy objects on the power cord, or to damage the cord in any way. Never operate this printer with a damaged power cord.
- Should any solid object or liquid fall into the cabinet, unplug the printer and have it checked by qualified personnel before operating it any further.
- Never disassemble the printer.
- To disconnect the cord, pull it out by the plug. Never pull the cord itself.
- When the printer is not going to be used for an extended period, disconnect the power cord from the wall outlet.
- Do not handle the printer roughly.
- To reduce the risk of electric shock, always unplug the printer from electrical outlet before cleaning and servicing the printer.

On moisture condensation

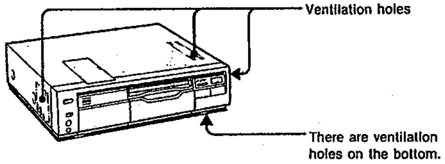
If the printer is brought directly from a cold place to a warm place or placed in an extremely warm or humid room, moisture may condense inside the unit. In such cases the printer will probably not work properly, and may even develop a fault if you persist in using it. If moisture condensation forms, turn off the power and do not use the printer for at least one hour.

On cleaning

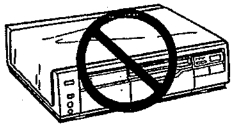
Clean the cabinet, panel and controls with a soft dry cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent, such as alcohol or benzine, which may damage the finish.

On installation

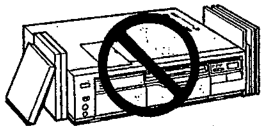
- Avoid placing the unit in a location subject to:
  —vibration
  —high humidity
  —excessive dust
  —direct sunlight
  —extremely high or low temperatures.
- Do not use electronic equipment near the unit. The unit will not work properly in electromagnetic fields.
- The unit is designed to operate horizontally. Never attempt to operate the printer in a tilted position. .
- Do not place heavy objects in the printer.
- Leave enough room around the printer so that the ventilation holes are not blocked. Blocking these holes may cause internal heat build-up.



Do not cover the unit with cloth or other materials.



Do not block the sides of the unit with books, etc.



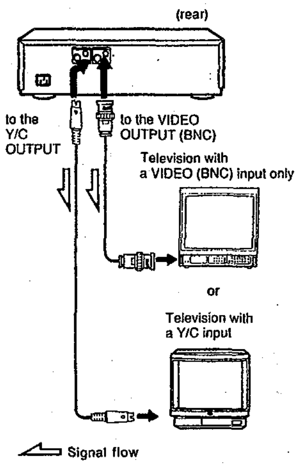
1-7. CONNECTING THE COLOR VIDEO PRINTER

Before you begin

- Prepare the units (TV, VTR, etc.) with separate Y/C (mini DIN 4-pin type) or VIDEO (BNC type) input/output connectors. (You can connect a video device with a phono-type VIDEO connector to the front VIDEO input, but cannot use the units with aerial connectors only.)
- Do not connect the AC power cord of the printer to the wall outlet until all of the other connections are complete.
- Turn off the power of the other equipment you will connect the printer to.
- For connection, also refer to the operating instructions of other equipment you will connect the printer to.

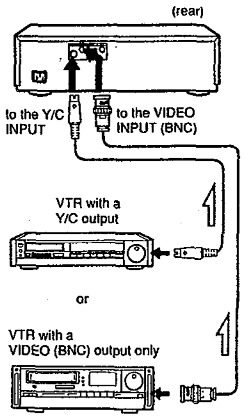
1 Connect the printer to the television/monitor.

When your television/monitor has both Y/C and VIDEO (BNC) input connectors, use the Y/C connector.


(rear)
to the Y/C OUTPUT
to the VIDEO OUTPUT (BNC)
Television with a VIDEO (BNC) input only
or
Television with a Y/C input
Signal flow

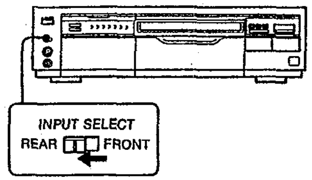
2 Connect the printer to the video equipment.

When your video equipment (VTR, camcorder, laser disc player, etc.) has both Y/C and VIDEO (BNC) output connectors, use the Y/C connector.

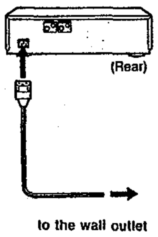

(rear)
to the Y/C INPUT
to the VIDEO INPUT (BNC)
VTR with a Y/C output
or
VTR with a VIDEO (BNC) output only

3 Set the INPUT SELECT switch on the front panel of the printer to "REAR" (when using the rear input connectors).

(When using the front input connectors, set it to "FRONT.")


INPUT SELECT
REAR
FRONT

4 Connect the AC power cord of the printer to the wall outlet.


(Rear)
to the wall outlet

Note

Operate the printer only on 220 – 240 V AC, 50/60 Hz.

Y/C connectors and VIDEO connectors

The printer has both Y/C connectors for separate luminance (Y) and chrominance (C) signals and VIDEO connectors for composite PAL video signals. When the video/television unit that the printer will be connected to has both types of connectors, use the Y/C connector.

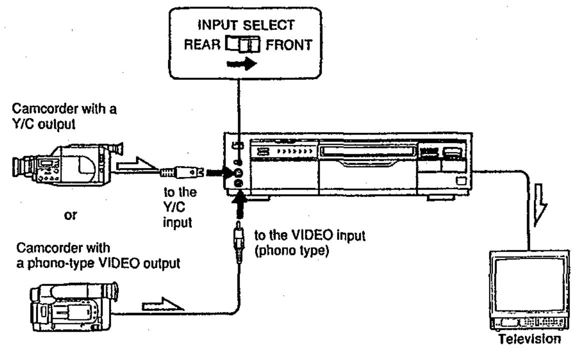
If you use both Y/C and VIDEO input connectors of the printer simultaneously, the input circuit will select Y/C input signals automatically.

Even if you have no video equipment

You can print TV broadcast pictures when your TV has Y/C or/and VIDEO (BNC) input/output connectors. For details, refer to "Printing TV Broadcast Pictures" on page 34 (E).

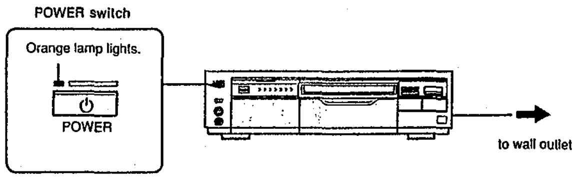
Connecting the video camera temporarily

Use the front input connectors to connect a video camera, camcorder, etc., temporarily. You can then connect or disconnect the equipment easily. Set the INPUT SELECT switch to "FRONT".


INPUT SELECT
REAR FRONT
Camcorder with a Y/C output
or
Camcorder with a phono-type VIDEO output
to the Y/C input
to the VIDEO input (phono type)
Television

Watching video and TV after connecting to the printer

As long as you leave the AC power cord of the printer connected to the wall outlet, you can enjoy watching video and TV as usual, even if the printer itself has been turned off. Whenever the unit is connected to the AC power source, the POWER lamp lights in orange.

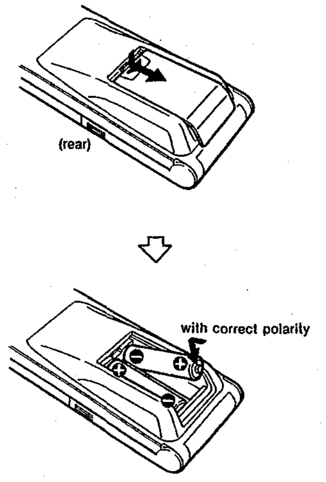

POWER switch
Orange lamp lights.
POWER
to wall outlet

1-8. USING THE REMOTE COMMANDER

The supplied remote commander has some special buttons and switches that the main unit does not have. Those buttons and switches, as well as those of the same function with the main unit, make the operation even quicker and easier.

Installing batteries

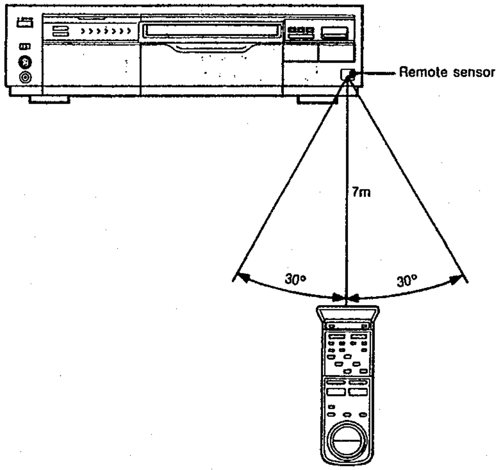
Insert two supplied size AA (R6) batteries into the remote commander.


(rear)
with correct polarity

After inserting the batteries, slide the lid back onto the remote commander.

Controlling the printer with the remote commander

Point the head of the remote commander toward the remote sensor on the printer.
You can operate the printer with the remote commander within 7 m of the printer.



How long is the battery life?
In normal operation, batteries will last for **about six months.** If the operating range of the commander becomes noticeably short, replace the batteries with new ones.

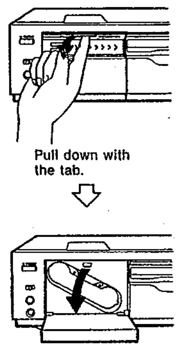
Notes on handling the remote commander
- Do not drop the commander or immerse it in water or other liquids.
- Keep the remote sensor of the printer away from the direct sunlight or the strong light of lighting equipment.
- To avoid malfunction, do not simultaneously depress two or more buttons.

Notes on handling the batteries
- Remove the batteries from the remote commander when you are not going to use the commander for an extended period of time. If you leave them installed, the batteries may leak.
- If the batteries should leak, wipe away the leakage in the battery case thoroughly, and then insert new batteries.
- Be sure to insert the batteries with correct polarity.
- Do not mix used and new batteries.
- Do not recharge the batteries.
- Do not mix batteries of different types.

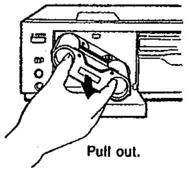
1-9. LOADING THE COLOR RIBBON CASSETTE

Before you begin
Make sure that you use the color ribbon cassette recommended for this printer only.

1 Open the ribbon compartment lid.


Pull down with the tab.

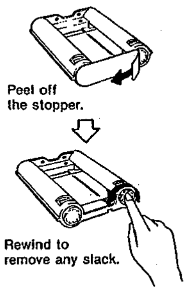
To remove the color ribbon cassette
When you replace the used color ribbon cassette with a new one, remove the used color ribbon cassette from the ribbon compartment.



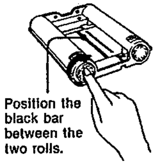
Note
The color ribbon is not reusable. When it is completely used, replace it with a new one.

2 Remove any slack from the color ribbon.

When you use a new color ribbon cassette
Peel off the stopper and rewind the color ribbon fully.

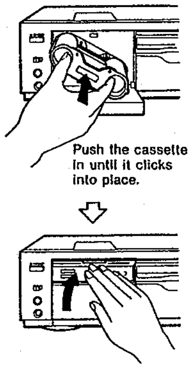

Peel off the stopper.
Rewind to remove any slack.

When you use a partially used color ribbon cassette
Wind the color ribbon until the black bar is positioned between the two rolls of the cassette.


Position the black bar between the two rolls.

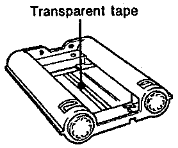
Note
If you insert a slack color ribbon cassette into the printer, it may be damaged or even cause malfunction.

3 Insert the color ribbon cassette firmly and close the ribbon compartment lid.

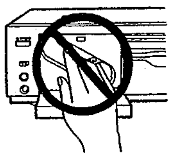

Push the cassette in until it clicks into place.

Color ribbon cassette and print paper
Color ribbon cassette supplied or contained in the recommended video printing packs is for use exclusively with regular and sticker print paper. Even if you replace the type of print paper, you do not need to replace the color ribbon cassette.

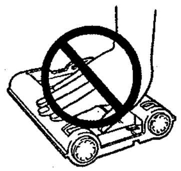
If your color ribbon should tear
Repair the ribbon with transparent tape. There should be no problem with using the remaining portion of the ribbon. Before loading the color ribbon cassette into the printer, remove any slack by winding the ribbon until the black bar is positioned between the two rolls of the cassette.


Transparent tape

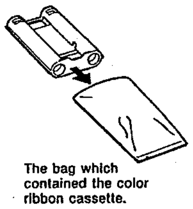
Caution
Never put your hand into the ribbon compartment. The thermal head reaches high temperatures, especially after repeated printing.



Note on handling color ribbons
Do not touch the color ribbon or place it in a dusty location. Fingerprints or dust on color ribbon will result in imperfect printing.



Notes on storing color ribbons
- Avoid placing the ribbon in a location subject to:
  - — high temperatures
  - — high humidity
  - — excessive dust
  - — direct sunlight.
- When you are going to store a partially-used color ribbon cassette for an extended period of time, store it in its original bag.

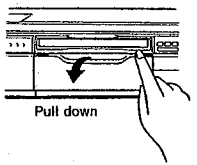

The bag which contained the color ribbon cassette.

1-10. LOADING THE PRINT PAPER

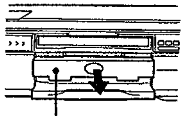
Before you begin

- Make sure that you use the print paper recommended for this printer only.
- When handling the print paper, be careful not to touch the printing surface.

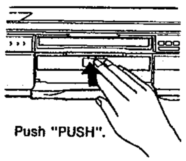
1 Open the paper compartment lid.

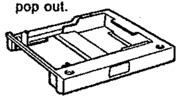


When you use the printer for the first time
When your printer is delivered, a stopper is installed instead of the paper tray. Pull out the stopper before use.


Pull out the stopper.

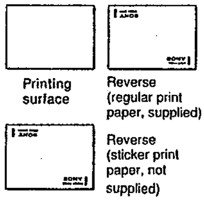
2 Remove the paper tray.



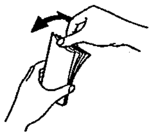

The paper tray will pop out.

3 Place the print paper in the paper tray.

① Determine which side is the printing surface. The shiny side without Sony logos is for printing.

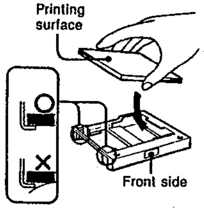

Printing surface
Reverse (regular print paper, supplied)
Reverse (sticker print paper, not supplied)

② Ruffle the paper.



Note
Be careful not to touch the printing surface.

③ Place the print paper in the paper tray with the printing surface facing up.

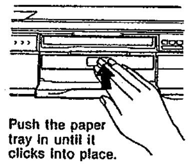

Printing surface
Front side

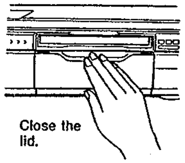
Make sure that the print paper is placed above the paper holder.

Notes

- The paper tray can hold up to 30 sheets of paper. When you add paper to a partly-full tray, be careful that the total number of sheets does not exceed 30. If you exceed this limit, paper jams may occur.
- Use the print paper recommended for this printer only. If you use a different type of paper, the printer may not print properly or may cause problems.
- Do not place different types of paper in the tray. If you do, paper jams may occur.

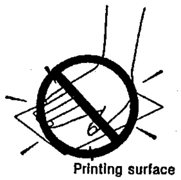
4 Slide the paper tray back into the printer and close the paper compartment lid.

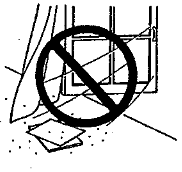

Push the paper tray in until it clicks into place.


Close the lid.

Notes on handling the print paper

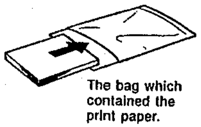
- The print paper is not photosensitive. You can handle it in normal daylight.
- Do not touch the printing surface. Finger prints or dust on the printing surface may result in imperfect printing.
- Do not wind or wrinkle the print paper.
- Do not place the print paper in a dusty location.


Printing surface



Notes on storing the print paper

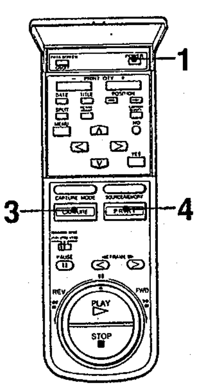
- Avoid placing the print paper in a location subject to:
  - — high temperatures
  - — high humidity
  - — excessive dust
  - — direct sunlight.
- When you are going to store a partially-used package of the print paper for an extended period of time, store it in their original bag.


The bag which contained the print paper.

1-11. PRINTING A FULL-SIZE IMAGE

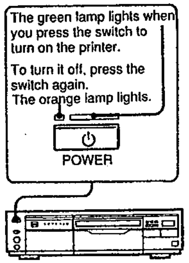
The following are the steps to make a full-size, basic printout of the pictures played back on the video equipment. For printing from the TV, refer to "Printing TV Broadcast Pictures" on page 34 (E).

Before you begin
- Check that the printer is properly connected to the video equipment and television.
- Check that the correct combination of color ribbon cassette and print paper are properly loaded.



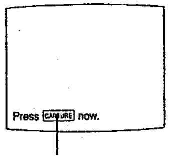
You can use the remote commander to do this.

1 **Turn on the power of the printer and the video equipment.**
(Set the TV/VTR switch on the TV to "VTR".)


The green lamp lights when you press the switch to turn on the printer.
To turn it off, press the switch again.
The orange lamp lights.

Printer is ready.

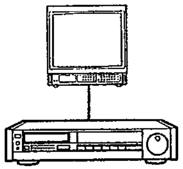
In about 4 seconds after you turn on the power; the printer becomes ready for printing and the following message appears.



Indicates the next operation.

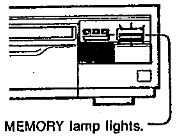
Note
Before the printer becomes ready, you cannot turn off the power even if you press the POWER switch.

2 **Play back the pictures on the video equipment.**

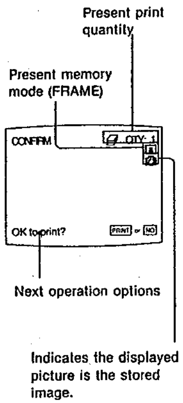


3 **When the image you want to print appears on the screen, press the CAPTURE button to store it.**

The image stored in memory appears on the screen so that you can confirm the image for printing.



MEMORY lamp lights.



Present print quantity

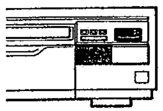
Present memory mode (FRAME)

Next operation options

Indicates the displayed picture is the stored image.

Confirm and error beep sounds
When you press a button on the main unit or remote commander, a beep sounds to show that you have done an expected step of the operation. If you have done an unacceptable step, repeated beeps sound to show that the printer rejected your operation.

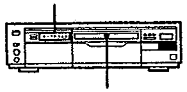
To change the image stored in memory
Press the NO button or the SOURCE/MEMORY button to return to the playback pictures. Press the CAPTURE button again to store a new image. The previous image in memory is replaced with the new one.



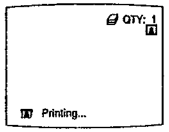
4 **Press the PRINT button.**

The playback picture reappears on the screen. Wait about 70 seconds for a printout to emerge.

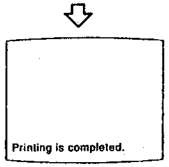
Dots on the PRINT STATUS lamp flash one after another, from left to right, as printing process proceeds.



When the printout emerges from the paper outlet, take it out.



When the printing is over,



Note
To prevent paper jamming, do not leave more than 30 printouts on the paper outlet.

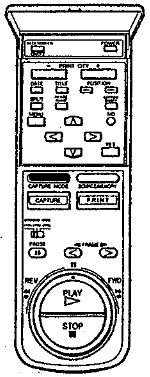
When the printer does not print
- If you turn off the printer, the stored image is erased. Store the image again to print it.
- As long as the ERROR or PAPER JAM lamp lights or an error message appears on the screen, the printer will not print. To correct the error, see "Error Messages" on page 62 (E) or "If Paper Jams" on page 64 (E).

Notes
- To avoid malfunction, do not unplug the power cord from the wall outlet during printing or operation.
- If you should turn off the printer during printing, the printer will be turned off automatically after the printing in process is complete.
- Do not open the hatches for checking a paper jam on the upper and bottom panel of the printer during printing.
- A black line may appear on the right or left end of a printout although no such a line appears on the screen. This is due to a distortion in the video signals and not due to some trouble with the printer.

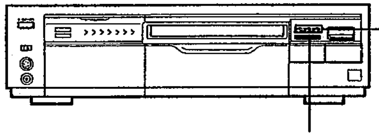
Notes on preserving your printouts
- To avoid degradation of the color, do not place a printout in locations subject to:
  - — high temperatures
  - — high humidity
  - — direct sunlight.

  Also avoid contact with any liquid, especially alcohol or solvents.
- Do not stick cellophane tape or leave plastic erasers on a printout. Also avoid putting a printout under a plastic desk mat. The color may stick to the plastic surface.
- When storing in an album, use a pocket-type transparent album. If a printout is stored in an album containing chemical material or glue, dye from the printout may transfer to the album paper.

Printing a fast-moving image without blur



A fast-moving image may be blurred when it is printed in the FRAME mode. To eliminate the blur, press the CAPTURE MODE button to select FIELD A or FIELD B and then print the image. You can thus eliminate blurring.
The picture quality, however, may become coarse when printed in FIELD mode. (You can change the memory mode FRAME to FIELD A or B to print an image stored in the FRAME mode).
For details, refer to "About Capture (memory) Mode" on page 58 (E).

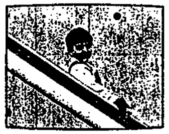


As you press the CAPTURE MODE button, the memory mode changes and corresponding lamp lights:
FRAME → FIELD A → FIELD B

CAPTURE MODE button.

FRAME mode

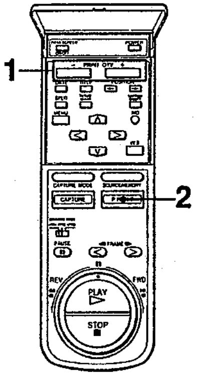
⇨



FILED A or B (blur is eliminated)

Making more than one copy of an image

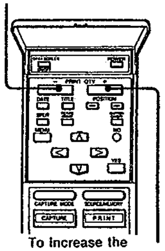
You can print up to 30 copies of a stored image repeatedly.
The following are the steps for setting the print quantity on the remote commander.
To set the print quantity with the MENU screen, refer to "Setting the Print Quantity" on page 52 (E).



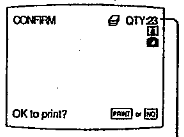
1 **After storing the image you want to print with the CAPTURE button, press PRINT QTY –/+ buttons to designate the print quantity.**

You can designate a number from 1 to 30.

To decrease the number, press the – button as many times as required. To decrease continuously, keep the button depressed.



To increase the number, press the + button as many times as required. To increase continuously, keep the button depressed.



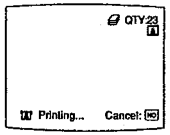
As you press the PRINT QTY buttons, the number changes.

Note
You can set the print quantity while "QTY" is displayed on screen.

2 **Press the PRINT button.**

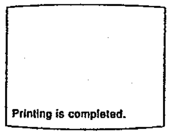
Wait about 70 seconds for the first copy to emerge, then wait about another 70 seconds for the second copy to emerge and so on.

Printouts emerge one after another.



When all the copies are printed,

⇩



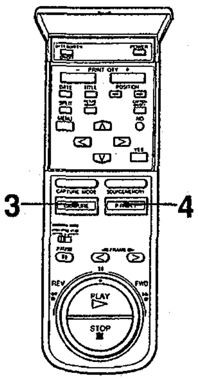
To stop printing midway
Press the NO button on the remote commander or the main unit. After the printing in process is completed, the remaining printing is canceled.

To change the number of copies midway
To increase the number, press the PRINT QTY + button on the commander. To decrease, press the PRINT QTY – button. You cannot change the number during printing with the buttons on the main unit.

If the print paper runs out midway
Load the print paper in the tray and press the PRINT button. The remaining copies will be printed.

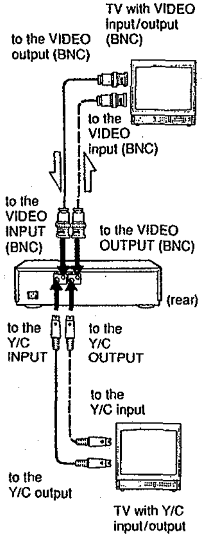
1-12. PRINTING TV BROADCAST PICTURES

Even when you have no video equipment, you can print TV broadcast pictures. The TV should have BNC-type VIDEO and/or Y/C input/output connectors. (A TV with only aerial connectors cannot be connected to the printer.)



1 Connect the printer to the TV.

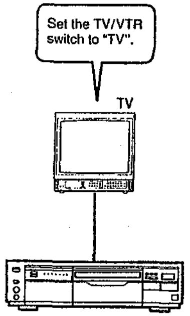
When your TV has both Y/C and VIDEO (BNC) input/output connectors, use the Y/C connectors.



* To check the image to be printed, the connections marked with – – – are necessary.

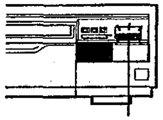
2 Set the INPUT SELECT switch on the front panel of the printer to "REAR" (when using the rear input connectors) and turn on the power of the printer and the TV.

(When using the front input connectors, set it to "FRONT.")
Also set the TV/VTR switch on the TV to "TV."
(You can watch the TV programs as usual.)



3 When the image you want to print appears on the screen, press the CAPTURE button to store it.

The MEMORY lamp lights indicating that the image is stored, although the TV screen displays the broadcast pictures. No message appears on the screen.



MEMORY lamp lights.

To check the image stored in the memory

① Set the TV/VTR switch on the TV to "VTR".
② Make sure that the MEMORY lamp lights. If it does not, press the SOURCE/MEMORY button. The stored image is displayed with the "CONFIRM" message.

To change the image stored in memory

① Set the TV/VTR switch on the TV to "TV."
② Make sure that the MEMORY lamp goes off. If it does not, press the SOURCE/MEMORY button. The broadcast pictures are displayed.
③ If you have just pressed the CAPTURE button, press the NO button.
④ When the image you want to print appears, press the CAPTURE button to store it. The MEMORY lamp lights.

4 Press the PRINT button.

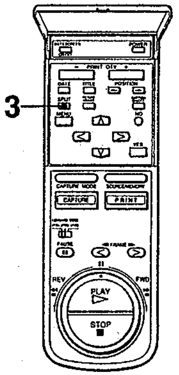
Wait about 70 seconds for the printout to emerge.

Notes

- When you want to make a variety of printouts using the MENU screen, set the TV/VTR switch on the TV to "VTR." Display the MENU screen and make the necessary settings. Then set the switch to "TV" and store and print an image.
- When you turn off the printer, the image stored in memory is erased. When you printing from the video equipment, you can store the same image again. When printing from the TV, however, you cannot store the same broadcast picture again.
- When the MEMORY lamp lights, you can print the stored image but cannot store another image. If you press the CAPTURE button, error beeps sound. When the MEMORY lamp goes off, you can store an image but cannot print the image. If you press the PRINT button, error beeps sound.

1-13. MAKING A VARIETY OF PRINTOUTS

To make a printout of 1/4-size or 1/16-size of the same, different, or strobe images or a printout with multiple inset images, select the SPLIT in the main MENU screen.



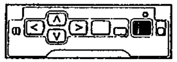
When using the remote commander, you can display the SPLIT menu screen by just pressing the SPLIT button. (When another menu is displayed, wait for the menu mode to be over and then press the SPLIT button.)

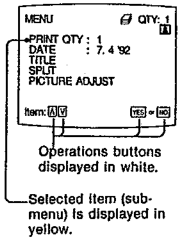
To watch the demonstration of how to use the menus

Press the DEMONSTRATION button on the main unit. The demonstration of how to use the menus automatically starts. The demonstration will be repeated until you press the PRINT button to print the stored image or the DEMONSTRATION button to quit the demonstration. (The NO button does not stop the demonstration.)

1 Press the MENU button.

The background becomes darker and the main MENU screen appears.





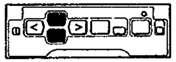
```
MENU                 QTY: 1
PRINT QTY : 1
DATE      : 7. 4 '92
TITLE
SPLIT
PICTURE ADJUST

Item: ∧ ∨          YES or NO
```

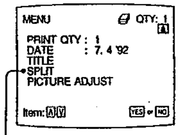
Operations buttons displayed in white.

Selected item (sub-menu) is displayed in yellow.

2 Select the "SPLIT" with the ∧ ∨ buttons.

"SPLIT" is selected and displayed in yellow.



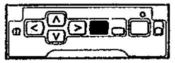


```
MENU                 QTY: 1
PRINT QTY : 1
DATE      : 7. 4 '92
TITLE
SPLIT
PICTURE ADJUST

Item: ∧ ∨          YES or NO
```

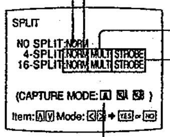
"SPLIT" is selected.

3 Press the YES button.

The SPLIT menu (sub-menu) screen appears.



Present SPLIT mode is displayed in yellow.



```
SPLIT

NO SPLIT:NORM
  4-SPLIT:NORM MULT STROBE
 16-SPLIT:NORM MULT STROBE

(CAPTURE MODE:       )
Item: ∧ ∨ Mode: < > → YES or NO
```

Present capture mode is displayed in yellow.

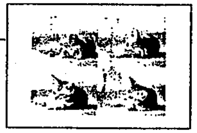
For making a printout of different images in 1/4 size or 1/16 size, proceed to page 42 (E).

Application

For making a printout with multiple inset images, proceed to page 46 (E).

For making a printout of the same image in 1/4 size or 1/16 size, proceed to page 40 (E).

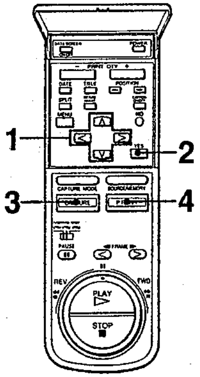
For making a printout of strobe images in 1/4 size or 1/16 size, proceed to page 44 (E).



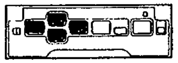
To undo the last operation
Press the NO button. The screen returns to the previous mode.

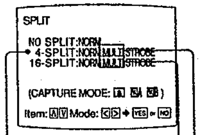
Printout of the same image in 1/4 size or 1/16 size

Before you proceed to the following steps, do the steps described on page 38 (E) and display the SPLIT menu screen.

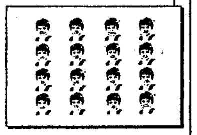

1
2
3
4
PLAY
STOP
REV
FWD
PAUSE

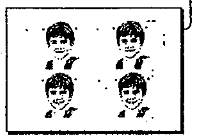
1 **Select "4-SPLIT" or "16-SPLIT" with the ⋀ ⋁ buttons and select "MULTI" with the < > buttons.**




SPLIT
NO SPLIT:NORM
4-SPLIT:NORM MULTI STROBE
16-SPLIT:NORM MULTI STROBE
(CAPTURE MODE: FA FB)
Item: ⋀ ⋁ Mode: < > ➔ YES or NO

Selected mode is displayed in yellow.

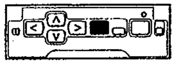


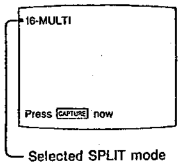


Printouts of the same image in 1/4 size or 1/16 size will be printed with white divisions.

2 **Press the YES button.**

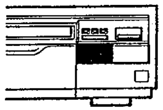
SPLIT MULTI input screen appears.

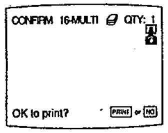



16-MULTI
Press CAPTURE now

Selected SPLIT mode (when selecting 16-SPLIT, MULTI)

3 **When the image you want to print appears, press the CAPTURE button to store it in memory.**




CONFIRM 16-MULTI QTY: 1
OK to print? PRINT or NO

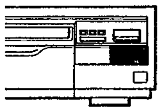
The image stored in memory appears on the screen so that you can confirm the image for printing. (Although the stored image is displayed in full-size screen, the image is actually printed in 4-split or 16-split planes.)

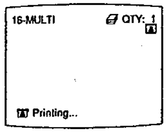
To change the image stored in the memory
Press the NO button or the SOURCE/ MEMORY button to return to the playback pictures. Press the CAPTURE button again to store a new image. The previous image in memory is replaced with the new one.

To change the split number of the stored image
The image stored in 4-SPLIT MULTI (or 16-SPLIT MULTI) mode can be printed in 16-SPLIT MULTI mode (or 4-SPLIT MULTI). To change the split number, press the MENU button to return to the main MENU screen and select the SPLIT again. Then select the desired SPLIT mode. You can also change the 4-SPLIT or 16-SPLIT to NO SPLIT (full-size) mode. An image stored in NO SPLIT mode can be printed in 4-SPLIT or 16-SPLIT MULTI mode.

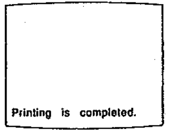
4 **Press the PRINT button.**

The playback pictures appear on the screen. Wait about 70 seconds for a printout to emerge.




16-MULTI QTY: 1
Printing...

When the printing is over,


Printing is completed.

To stop printing (When printing more than one copy)
Press the NO button. The printing stops after the printing in process is completed.

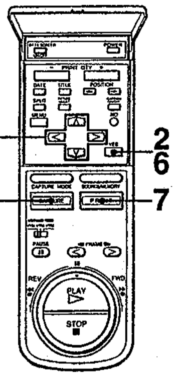
To store one image while printing another
When you set the CAPTURE MODE to FIELD A or B, you can store one image while printing another. For details, refer to "Storing one Image while Printing Another" on page 56 (E).

To confirm the stored image
Press the SOURCE/ MEMORY button. The MEMORY lamp lights and the stored image is displayed on the screen with the CONFIRM message.

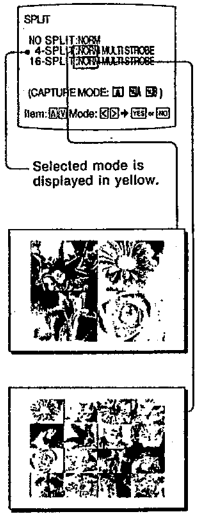
To select a different sub-menu
Press the MENU button and select the desired item (sub-menu) on the main MENU screen with the ⋀ ⋁ buttons.

Printout of different images in 1/4 size or 1/16 size

Before you proceed to the following steps, do the steps described on page 38 (E) and display the SPLIT menu screen. Also set the CAPTURE MODE to FRAME.


3,1
4
2
6
7
PLAY
STOP

1 **Select "4-SPLIT" or "16-SPLIT" with the ⋀ ⋁ buttons and select "NORM" with the < > buttons.**

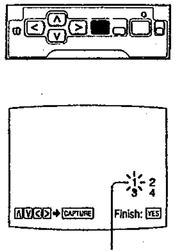

SPLIT
NO SPLIT:NORM
4-SPLIT:NORM MULTISTROBE
16-SPLIT:NORM MULTISTROBE
(CAPTURE MODE:
Item: ⋀⋁ Mode: <> → YES or NO

Selected mode is displayed in yellow.

Printouts of different images in 1/4 size or 1/16 size will be printed without white divisions.

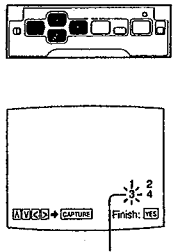
2 **Press the YES button.**

SPLIT NORM input screen appears.



The position where an image is first stored flashes. (when selecting the 4-SPLIT, NORM mode).

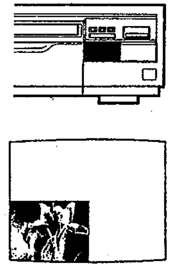
3 **Select where an image is to be stored with the ⋀ ⋁ < > buttons.**



Selected position flashes.

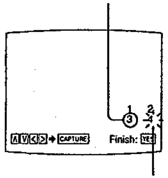
About the CAPTURE MODE available
In 4-SPLIT or 16-SPLIT NORM mode, set CAPTURE MODE to FRAME. If you select the 4-SPLIT or 16-SPLIT NORM mode with FIELD A or B mode, an error message stating "CAPTURE MODE is set to ▣." appears and CAPTURE MODE is automatically switched to FRAME mode. (You can print a fast-moving subject without blur.)

4 **When the image you want to print appears, press the CAPTURE button to store it in memory.**



The stored image is displayed for about one second. Then the palyback picture reappears on the screen.

The position occupied with a stored image is displayed in yellow.



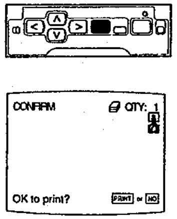
The position where an image can be stored next flashes. (Flashing position moves: 1 → 2 → 3 → 4)

5 **Repeat steps 3 and 4 until you have stored 4 or 16 images in all the positions.**

To change the image stored in memory
Make the position you want to change flash with the ⋀ ⋁ < > buttons.
Then store a new image to replace the previous one.

To confirm the stored image
Press the SOURCE/ MEMORY button. The MEMORY lamp lights and the stored image is displayed on the screen with the CONFIRM message.

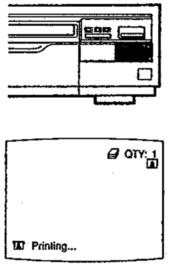
6 **Press the YES button.**


CONFIRM
QTY: 1
OK to print?
PRINT or NO

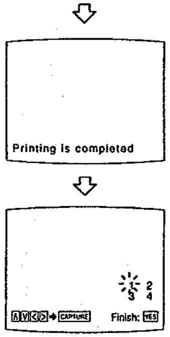
The stored images are displayed as they will be printed.

To change the image stored in the memory
Press the NO button and store new images.

7 **Press the PRINT button.**


QTY: 1
Printing...

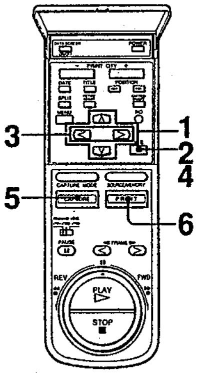
When the printing is over,


Printing is completed
Finish: YES

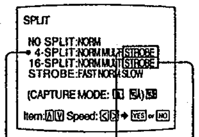
To select a different sub-menu
Press the MENU button and select the desired item (sub-menu) on the main MENU screen with the ⋀ ⋁ buttons.

Printout of strobe images in 1/4 size or 1/16 size

Before you proceed to the following steps, do the steps described on page 38 (E) and display the SPLIT menu screen. Also set CAPTURE MODE to FRAME.



1 **Select "4-SPLIT" or "16-SPLIT" with the [∧] [∨] buttons and select "STROBE" with the [<] [>] buttons.**



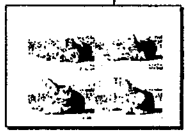
SPLIT

NO SPLIT:NORM
4-SPLIT:NORM MULTI STROBE
16-SPLIT:NORM MULTI STROBE
STROBE:FAST NORM SLOW

(CAPTURE MODE: [F] [FA] [FB])

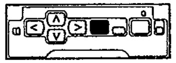
Item:[∧][∨] Speed:[<][>] → [YES] or [NO]

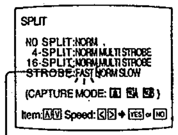
Selected mode is displayed in yellow.



Printouts of 4 or 16 sequential views of a moving object (strobe images), each in 1/4 size or 1/16 size, will be printed without white divisions.

2 **Press the YES button.**





SPLIT

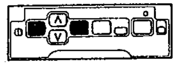
NO SPLIT:NORM
4-SPLIT:NORM MULTI STROBE
16-SPLIT:NORM MULTI STROBE
STROBE:FAST NORM SLOW

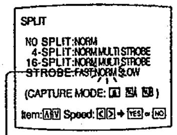
(CAPTURE MODE: [F] [FA] [FB])

Item:[∧][∨] Speed:[<][>] → [YES] or [NO]

Flashing

3 **Select the speed of the strobe action with the [<] [>] buttons.**





SPLIT

NO SPLIT:NORM
4-SPLIT:NORM MULTI STROBE
16-SPLIT:NORM MULTI STROBE
STROBE:FAST NORM SLOW

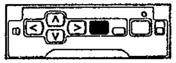
(CAPTURE MODE: [F] [FA] [FB])

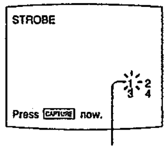
Item:[∧][∨] Speed:[<][>] → [YES] or [NO]

Selected speed flashes.

4 **Press the YES button.**

STROBE input screen appears.





STROBE

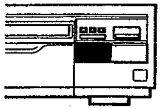
Press [CAPTURE] now.

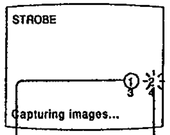
Flashing. (When selecting 4-SPLIT STROBE mode)

About the CAPTURE MODE available
In 4-SPLIT or 16-SPLIT STROBE mode, set CAPTURE MODE to FRAME. If you select FIELD A or B mode, an error message stating "CAPTURE MODE is set to [F]." appears and CAPTURE MODE is automatically switched to FRAME mode. (You can print a fast-moving subject without blur.)

5 **When the image you want to print appears, press the CAPTURE button to start storing a series of strobe images.**

Sequential views of a moving object are automatically stored with the selected strobe action speed in step 3.





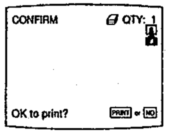
STROBE

Capturing images...

The position where an image is stored lights in yellow.

The position where an image is being stored flashes in the order of 1 → 2 → 3 → 4.

When all the images are stored, they are displayed as they will be printed.

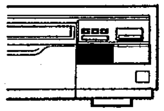


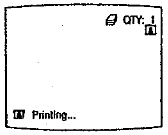
CONFIRM QTY: 1

OK to print? [PRINT] or [NO]

To change the image stored in the memory
Press the NO button and then the CAPTURE button to start storing strobe images.

6 **Press the PRINT button.**



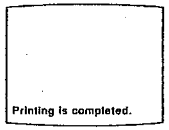


QTY: 1

Printing...

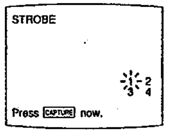
When the printing is over,

⇩



Printing is completed.

⇩



STROBE

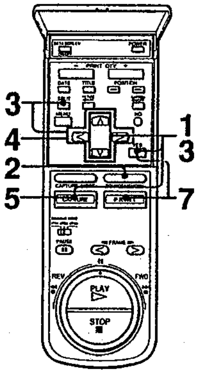
Press [CAPTURE] now.

To select a different sub-menu
Press the MENU button and select the desired item (sub-menu) on the main MENU screen with the [∧] [∨] buttons.

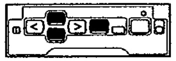
Note
When you combine 4-SPLIT NORM or STROBE mode with 16-SPLIT MULTI mode (or, 16-SPLIT NORM or STROBE mode with 4-SPLIT MULTI mode), you can make a printout of 64 images. Such a printout, however, cannot be recommended since its picture quality becomes poor.

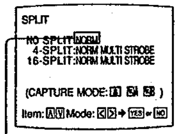
Printout with multiple inset images

You can inset multiple 1/4 size and/or 1/16 size images in a full-size image. First store the full-size background image and then store 1/4 size and/or 1/16 size inset images. Before you proceed to the following steps, do the steps described on page 38 (E) and display the SPLIT menu screen. Also, set CAPTURE MODE to FRAME.



1 **Select "NO SPLIT: NORM" with the ∧ ∨ buttons and press the YES button. Press the CAPTURE button to store the background image (full-size).**

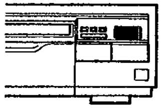



SPLIT
NO SPLIT:NORM
4-SPLIT:NORM MULTI STROBE
16-SPLIT:NORM MULTI STROBE
(CAPTURE MODE: Ⓕ ⒶA ⒷB)
Item: ∧∨ Mode: <> → YES or NO

Lights in yellow.

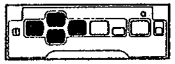
About the CAPTURE MODE available
Set the CAPTURE MODE to FRAME. If you store the background full-size image with the FIELD A or B mode and select the 4-SPLIT or 16-SPLIT mode, an error message stating "CAPTURE MODE is set to Ⓕ." appears and CAPTURE MODE is automatically switched to FRAME mode. At that time, the background image will be overlapped with the image stored in the other FIELD mode.

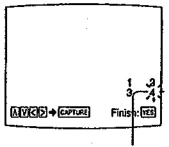
2 **Press the SOURCE/MEMORY button to display playback pictures.**



3 **Press the MENU button. Then select "4-SPLIT NORM" or "16-SPLIT NORM" and press the YES button.**

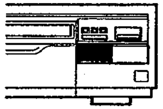
4 **Select where an image is to be inset with the ∧ ∨ < > buttons.**





Selected position flashes. (ex. in the 4-SPLIT NORM mode)

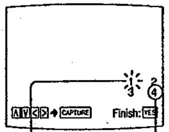
5 **When the image you want to inset appears, press the CAPTURE button.**



Background full-size image

The inset image

The stored image is displayed for about one second. Then playback pictures reappear.



Position where an image is stored lights in yellow.

Position where an image is to be stored flashes.

6 **To inset multiple images, repeat steps 4 and 5.**

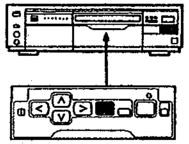
To change the image stored in the memory
Make the position you want to change flash with the ∧ ∨ < > buttons. Then store a new image to replace the previous one.

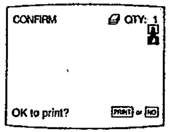
To inset both 1/4-size and 1/16-size images
Press the MENU button to return to the main MENU screen. Then select the different SPLIT NORM mode (4-SPLIT NORM or 16-SPLIT NORM). Repeat steps 4 and 5.

To confirm the stored image
Press the YES button. The MEMORY lamp lights and the stored image is displayed on the screen with the CONFIRM message.

To change the image stored in the memory
Press the NO button and then the CAPTURE button to store new images.

7 **Press the YES button to fix the inset images and then press the PRINT button.**



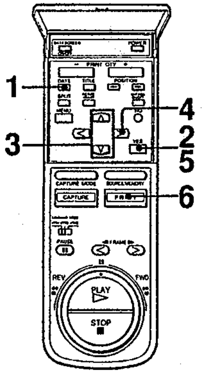

CONFIRM
QTY: 1
OK to print?
PRINT or NO

When the YES button is pressed, the stored images are displayed as they are printed.

To select a different sub-menu
Press the MENU button and select the desired item (sub-menu) on the main MENU screen with the ∧ ∨ buttons.

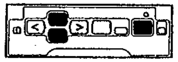
1-14. PRINTING WITH A DATE

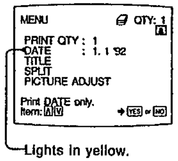
You can put a date on a printout. When you select DATE in the main MENU screen, you cannot select the TITLE (title input) menu. When you want to enter both a date and a title, select the TITLE menu as they will allow you to enter numbers and letters at the same time.


1
3
4
2
5
6
PLAY
STOP

Press the DATE button and the DATE input screen appears at once.

1 **Press the MENU button and select "DATE" with the ⊼ ⊻ buttons.**

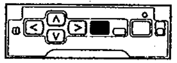


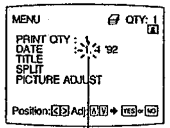

MENU
QTY: 1
PRINT QTY : 1
DATE : 1. 1 '92
TITLE
SPLIT
PICTURE ADJUST
Print DATE only.
Item: ⊼⊻
YES NO

Lights in yellow.

2 **Press the YES button.**

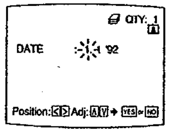
DATE input screen appears.




MENU
QTY: 1
PRINT QTY :
DATE : 1 '92
TITLE
SPLIT
PICTURE ADJUST
Position: < > Adj: ⊼⊻ YES NO

Flashes.

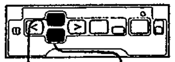
When you press the DATE button on the remote commander


QTY: 1
DATE '92
Position: < > Adj: ⊼⊻ YES NO

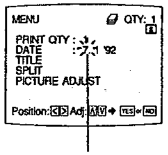
3 **Enter the desired number as the day or month with the ⊼ ⊻ buttons.**

You can enter a desired number for the first two items from 1 to 31; they can be set to as either day or month.

To increase the number, press the ⊼ button.
To decrease the number, press the ⊻ button.



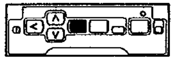
Increases the number. Decreases the number.

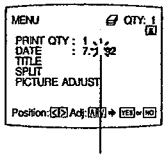

MENU
QTY: 1
PRINT QTY :
DATE : 7. 1 '92
TITLE
SPLIT
PICTURE ADJUST
Position: < > Adj: ⊼⊻ YES NO

Number changes.

To cancel the date just entered
Press the NO button. The date returns to the previous date and the DATE input screen is released.

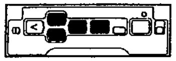
4 **Press the > button to move to the next item (month/day).**

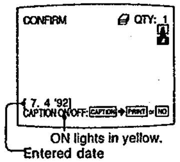



MENU
QTY: 1
PRINT QTY : 1
DATE : 7. '92
TITLE
SPLIT
PICTURE ADJUST
Position: < > Adj: ⊼⊻ YES NO

Flashes.

5 **Repeat steps 3 and 4 to enter the date, month and year.**
Press the YES button to fix the date.



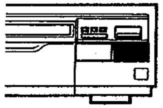

CONFIRM
QTY: 1
7. 4 '92
CAPTION ON/OFF: CAPTION PRINT NO

ON lights in yellow.
Entered date

When the entered date is displayed, the stored image is printed with the date. If the entered date is not displayed, press the CAPTION button.
If the playback pictures appear, press the SOURCE/MEMORY button to display the stored image on the screen. Or, if you have not stored an image yet, press the CAPTURE button.

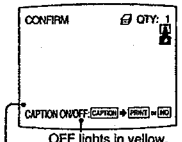
To change the date
Highlight the item in yellow with the < > buttons and change the value with ⊼ ⊻ buttons.

6 **Press the PRINT button.**



The stored image will be printed with the date.

To print the image without the date
Press the CAPTION button so that the entered date disappears on the screen.


CONFIRM
QTY: 1
CAPTION ON/OFF: CAPTION PRINT NO

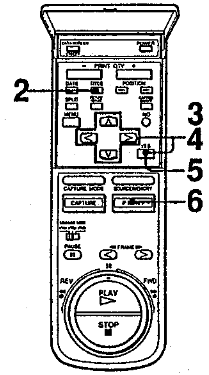
OFF lights in yellow.
Entered date is not displayed.

Note
The entered date will be stored after you turn off the power. When you unplug the AC power cord, the date returns to the default date: 1.1 '92

1-15. PRINTING WITH A TITLE

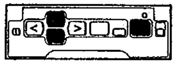
You can put a title of up to 40 characters, such as a date and a comment, below the image. When you select the TITLE in the main MENU screen, you cannot select the DATE menu. When you want to enter both a date and a title, select the TITLE menu as you can enter figures and characters at the same time.

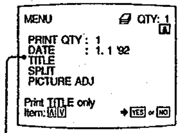
Happy birthday! 7.4 '92


2
3
4
5
6
PLAY
STOP

Press the TITLE button and the TITLE input screen appears at once.

1 **Press the MENU button and select "TITLE" with the ∧ ∨ buttons.**

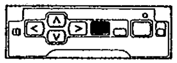



MENU
QTY: 1
PRINT QTY : 1
DATE : 1. 1 '92
TITLE
SPLIT
PICTURE ADJ
Print TITLE only
Item:
YES or NO

Lights in yellow.

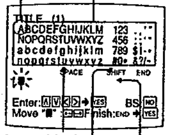
2 **Press the YES button.**

TITLE (title input) (1) menu screen appears.



Selected character lights in yellow.

Characters available for a title


TITLE (1)
ABCDEFGHIJKLM 123
NOPQRSTUVWXYZ 456
abcdefghijklm 789 $!
nopqrstuvwxyz #0+ &?/-
SPACE SHIFT END
Enter: YES BS: NO
Move "■": Finish: END → YES

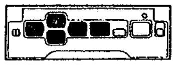
Enters a blank space between characters.

Character input line

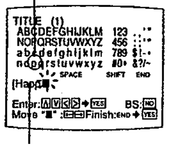
Shifts TITLE screen from TITLE (1) to (2) or vice versa.

To return to the main MENU screen
Press the NO button. The main MENU screen reappears.

3 **Select the desired character by pressing the < > ∧ ∨ buttons and press the YES button to enter it in the input line.**



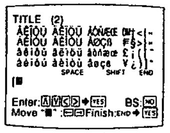
Selected character lights in yellow.


TITLE (1)
ABCDEFGHIJKLM 123
NOPQRSTUVWXYZ 456
abcdefghijklm 789 $!
nopqrstuvwxyz #0+ &?/-
SPACE SHIFT END
[Happ
Enter: YES BS: NO
Move "■": Finish: END → YES

Characters entered.

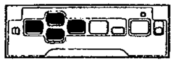
To enter spaces between characters
Select "SPACE" with the < > ∧ ∨ buttons as many times as you want.

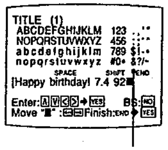
To shift to TITLE (2) menu screen
Select "SHIFT" with the < > ∧ ∨ buttons and press the YES button.
To return to the TITLE (1) screen, select "SHIFT" and press the YES button again.


TITLE (2)
SPACE SHIFT END
Enter: YES BS: NO
Move "■": Finish: END → YES

4 **Repeat step 3 until you have entered all the characters for your title and then select "END" with the ∧ ∨ < > buttons.**

You can enter up to 40 characters as a title.




TITLE (1)
ABCDEFGHIJKLM 123
NOPQRSTUVWXYZ 456
abcdefghijklm 789 $!
nopqrstuvwxyz #0+ &?/-
SPACE SHIFT END
[Happy birthday! 7.4 92■
Enter: YES BS: NO
Move "■": Finish: END → YES

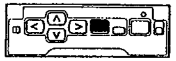
Lights in yellow.

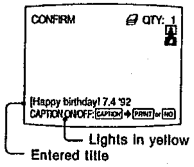
To erase the characters entered in the input line
Press the NO button. The character to the left of the cursor (highlighted in yellow) will be deleted.

To replace the character with the new one
Press the POSITION ←/→ buttons on the remote commander to move the the cursor (highlighted in yellow) to the character you want to replace. Then select a new character with the < > ∧ ∨ buttons and press the YES button: the new character replaces the previous one.

5 **Press the YES button.**

The CONFIRM screen appears with the entered title.



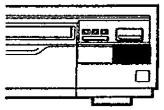

CONFIRM
QTY: 1
[Happy birthday! 7.4 '92
CAPTION ON/OFF: CAPTION → PRINT or NO

Lights in yellow

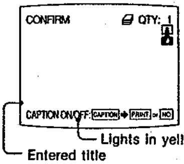
Entered title

When the entered title is displayed, the stored image is printed with the title. If it is not displayed, press the CAPTION button to make it appear.
If the playback picture is being displayed, press the SOURCE/MEMORY button to display the stored image on the screen. Or, if you have not stored an image yet, press the CAPTURE button.

6 **Press the PRINT button.**



To print the image without the entered title
Press the CAPTION button so that the entered title is not displayed.


CONFIRM
QTY: 1
CAPTION ON/OFF: CAPTION → PRINT or NO

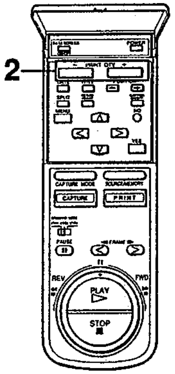
Lights in yellow

Entered title disappears.

Notes
- The entered title will be lost when you turn off the power.
- We suggest you set the CAPTURE MODE to FRAME to print the title distinctly.
If you select FIELD A or B, the title may be coarse when printed.

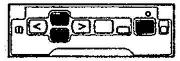
1-16. SETTING THE PRINT QUANTITY

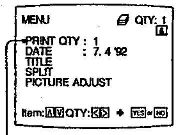
You can print up to 30 copies of a stored image repeatedly. Set a print quantity in the PRINT QTY menu.



Press the PRINT QTY –/+ buttons to increase and decrease the print quantity. For details, refer to "Making more than one copy of an image" on page 33 (E).

1 **Press the MENU button and select "PRINT QTY" with the ⋀ ⋁ buttons.**



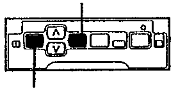

MENU QTY: 1
PRINT QTY : 1
DATE : 7. 4 '92
TITLE
SPLIT
PICTURE ADJUST
Item: ⋀ ⋁ QTY: < > ➔ YES or NO

Lights in yellow.

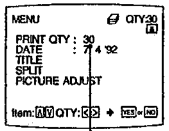
2 **Set the desired number for the print quantity with the < > buttons.**

To increase the number, press the > button.
To decrease the number, press the < button.

Increases the number.



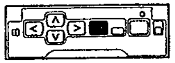
Decreases the number.


MENU QTY: 30
PRINT QTY : 30
DATE : 7. 4 '92
TITLE
SPLIT
PICTURE ADJUST
Item: ⋀ ⋁ QTY: < > ➔ YES or NO

Print quantity value changes.

3 **Press the YES button.**

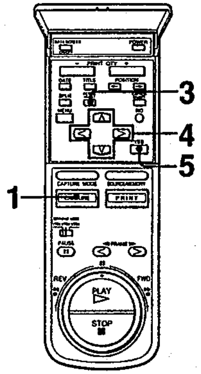
The screen returns to the previous status.



Notes
- When you turn off the printer, the print quantity setting returns to 1 (default).
- The newly set print quantity applies to the next printing.

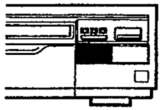
1-17. ADJUSTING THE PICTURE QUALITY OF PRINTOUTS

You can adjust the color of the printouts on the PICTURE ADJUST (picture quality adjustment) menu.

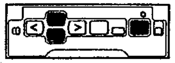


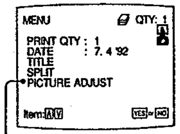
Press the PICTURE ADJUST button to directly display the PICTURE ADJUST screen.

1 **When an image you want to print appears, press the CAPTURE button to store it in memory.**



2 **Press the MENU button and select "PICTURE ADJUST" with the ⋀ ⋁ buttons.**

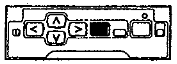


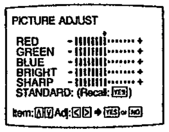

MENU QTY: 1
PRINT QTY : 1
DATE : 7. 4 '92
TITLE
SPLIT
PICTURE ADJUST
Item: ⋀ ⋁ YES or NO

Lights in yellow.

3 **Press the YES button.**

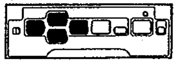
The PICTURE ADJUST menu appears. In the background, the stored image is displayed.



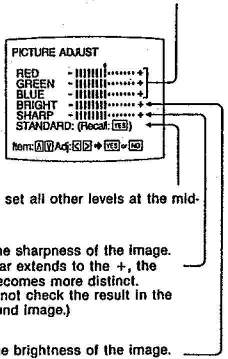

PICTURE ADJUST
RED – +
GREEN – +
BLUE – +
BRIGHT – +
SHARP – +
STANDARD: (Recall: YES)
Item: ⋀ ⋁ Adj: < > ➔ YES or NO

4 Select the item with the [∧] [∨] buttons and adjust the level with the [<] [>] buttons.

You can adjust each level of three color elements (RGB), brightness, and the sharpness.
The level increases as you press the [>] button.
The level decreases as you press the [<] button.
As the picture quality of the background image changes according to the adjustment (except for the SHARP), adjust the level by checking the result.
When you want to set the picture quality to the standard levels, select "STANDARD" and then press the YES button.



Adjust each element of the color (RGB). When each item is selected, it lights in its own color (red, green, or blue). As the bar extends to the +, each intensity becomes stronger.



Select to set all other levels at the mid-level.

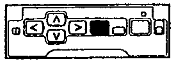
Adjust the sharpness of the image. As the bar extends to the +, the image becomes more distinct. (You cannot check the result in the background image.)

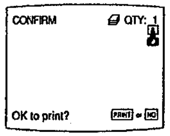
Adjust the brightness of the image. As the bar extends to the +, the image becomes brighter.

Notes
- During the picture adjustment, you cannot display the playback pictures even if you press the SOURCE/ MEMORY button.
- You cannot adjust the picture quality during printing.

5 Press the YES button.

The adjusted image appears.





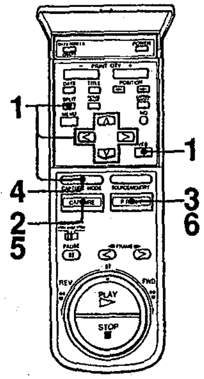
To cancel the setting
Press the NO button.
The levels return to the previous settings.

Notes
- The next printout is printed with the newly set values.
- You cannot adjust the picture quality during printing.
- The picture quality of the image you have checked on the screen may be slightly different from that of the printout. This occurs when the picture quality of the television itself differs from that of the printer.
- The picture adjust setting is stored even after you turn off the printer. When you unplug the AC power cord, all the level returns to the default: the standard level.

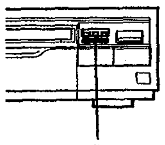
About AUTO PICTURE switch
Usually set the AUTO PICTURE (automatic gain control) switch on the main unit to ON. When you are going to print animation or another video source whose color level changes quickly, an image may be printed with too much black and white color. In such a case, set the switch to OFF and print the image again.

1-18. STORING ONE IMAGE WHILE PRINTING ANOTHER

In the NO SPLIT NORM (full-size), 4-SPLIT or 16-SPLIT MULTI (same image in 1/4 size or 1/16 size) modes, you can store two images in two fields of the memory — FIELD A and FIELD B.
This function allows you to store one image while printing another.



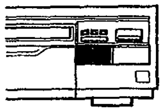
1 **Select the "NO SPLIT", "4-SPLIT MULTI", or "16-SPLIT MULTI" in the SPLIT menu. Then press the CAPTURE MODE button to select FIELD A or B.**

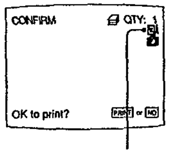


Selected FIELD memory lights.

2 **When the image you want to print appears on the screen, press the CAPTURE button to store it.**

The image stored in FIELD A (or B) memory appears.

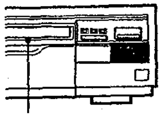




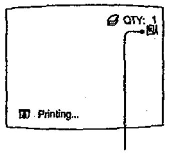
FIELD memory display (when FIELD A is selected and displayed in yellow.)

3 **Press the PRINT button.**

The image stored in FIELD A (or B) will be printed. The playback pictures appear on the screen.

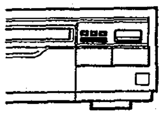


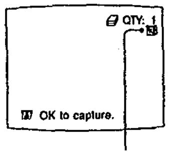
Wait for 70 seconds for a printout to emerge.



Displayed in yellow

4 **Press the CAPTURE MODE button to select the other FIELD memory (A or B).**

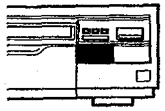


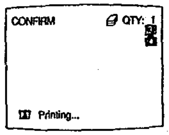


FIELD B is displayed in light blue. (when switched to FIELD B) Indicates you can store another image.

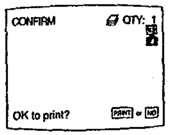
5 **When the image you want to print appears on the screen, press the CAPTURE button to store it.**

The image is stored in the other FIELD memory and appears on the screen.





When printing of the image stored in FIELD A is completed, you can print the second image stored in FIELD B.



6 **Press the PRINT button.**

The second image is printed.

To confirm the stored images in FIELD A and B
Make sure that the MEMORY lamp is lit. If it is not, press the SOURCE/MEMORY button. Press the CAPTURE MODE button to display the image stored in FIELD A and B. (The corresponding lamp lights.)

To change the image stored in FIELD A or B
Press the SOURCE/MEMORY button to return to the playback picture. Press the CAPTURE MODE button to light the FIELD memory having the image you want to replace. Then press the CAPTURE button. The previous image in memory is replaced with the new one.

Notes
- You cannot use FRAME memory and FIELD memory at the same time.
- When printing a full-size image in FIELD memory mode, the picture quality of the printout may be coarse compared with that in FRAME memory mode.

1-19. ABOUT CAPTURE (MEMORY) MODE

This section explains how to use the FRAME and FIELD memory modes and the structure of the memory mode.

FRAME mode and FIELD mode

To print an image, you must first store it in memory. The memory consists of two fields. You can use these two fields together or separately. The memory use status is called the "capture (or memory) mode." There are two capture modes:

- FRAME mode: two fields are used together to store an image.
- FIELD mode: two fields are used separately to store two images.

Select either of the modes according to your purposes:

When you want to..	Memory Mode	Screen Display
• Print an image with high-resolution. • Make a full-size printout of a stable object.* • Make a printout of 1/4- or 1/16 size images or a printout with insets.**	FRAME	▣
• Print a fast-moving object without blur (only in making a full-size printout).* • Store one image while printing another.	FIELD A/B	▣A ▣B

* A fast-moving object may be printed with blur in the FRAME mode only when it is printed in full-size. When printing in 1/4 size or 1/16 size, we recommend you use the FRAME mode for better picture quality.

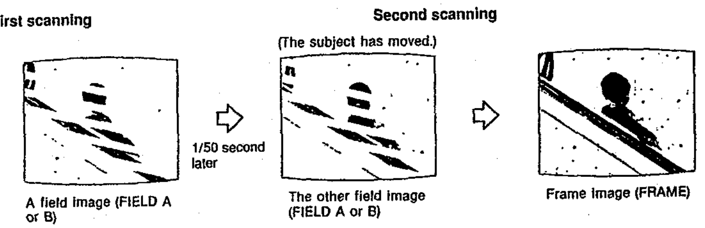
** When making a printout of different images, strobe images and insets in 1/4 size or 1/16 size, you can only select the FRAME mode.

How the picture is stored in memory

A television reproduces an image by scanning electron beams across its screen: first on every other line; then returning to the top, in the remaining lines. Each of the two scannings from top to bottom is called a field. Together they make up a frame.

The color video printer records an image in the same way. If the subject moves quickly, the first field image and the second field image differs slightly. When these two field images are overlapped in the frame setting, the frame image will appear jittery on the monitor and blurred when printed.

In printing a full-size image, you can print without blur in the FIELD mode. In printing 1/4- or 1/16 size images, you can print even a fast-moving subject without blur.



1-20. ERROR MESSAGES

When the print paper or color ribbon runs out, the paper jams, or another problem occurs, the ERROR and PAPER JAM lamps light and/or an error message stating the problem appears on the screen. Note the message and perform whatever action is necessary to solve the problem.

```
Out of ribbon.
Please set new one.
```

The color ribbon has been completely used up.
Replace the used color ribbon. (The color ribbon cannot be reused.)
(page 24 (E))

```
Please make sure
upper hatch is closed
correctly.
```

Upper hatch for checking paper jam is open.
Close the hatch correctly.

```
Please make sure
there is still paper
in the tray.
```

The print paper has run out.
Load the print paper into the paper tray.
(page 26 (E))

```
Please make sure
lower hatch is closed
correctly.
```

Bottom hatch for checking paper jam is open.
Close the hatch correctly.

```
Please reset ribbon
cassette again
```

Color ribbon cassette is not fitted properly.
Check that the color ribbon has not run out and fit cassette firmly into the ribbon compartment.
(page 24 (E))

```
Please set print paper
correctly.
```

Print paper or paper tray is not fitted properly.
Check that:
- The print paper is loaded properly into the paper tray with the printing surface facing up.
- The print paper specified for this printer is being used.
- The paper tray is inserted securely into the printer.
(page 26 (E))

```
CAPTURE MODE is set
to A .
```

The CAPTURE mode is automatically switched from the FIELD mode to the FRAME mode.
(in the SPLIT NORM or STROBE mode)

```
Please confirm memory.
```

An image is not stored correctly or not stored at all in the memory.
Check that:
- An image is stored in the memory. If not, press CAPTURE to store it.
- The stored image is displayed on the screen before you press the PRINT button.
- The FRAME mode is used in printing 1/4- or 1/16 size different, strobe, or inset images.
- FIELD A or B is selected when you print the image stored in FIELD mode.

```
Please open upper hatch
and remove jammed paper.
```

Paper is jammed.
Turn off the power and open the upper hatch to remove the jammed paper.
(page 64 (E))

```
Please make sure
picture is captured
correctly.
```

An image is not stored correctly or not stored at all in the memory.
Check that:
- An image is stored in the momory. If not, press CAPTURE to store it.
- The FRAME mode is selected in printing the image stored in the FIELD mode.
  Select the FIELD mode.

```
Please open lower hatch
and remove jammed paper.
```

Paper is jammed.
Turn off the power and open the bottom hatch to remove the jammed paper.
(page 65 (E))

```
Motor is stopped.
Please turn power off.
```

Motor does not work because of paper jam or other problem.
Turn off the power then open the upper or bottom hatch to check if paper is jammed. If so, remove the jammed paper. If the printer still does not work, contact Sony service facilities for assistance.

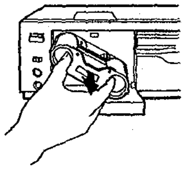
1-21. IF PAPER JAMS

If paper jams, the PAPER JAM lamp lights with an error message and printing stops.
Remove the ribbon cassette and open the upper and/or bottom hatches to find the jammed sheet.

1 **Turn off the power.**

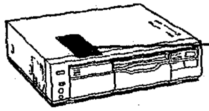
When the PAPER JAM lamp lights, turn off the power and remove the jammed paper. Then turn on the printer. If you keep the power on during this procedure, the lamp remains on even after the jammed sheet is removed. When you turn off the power, the image stored in the memory is lost.

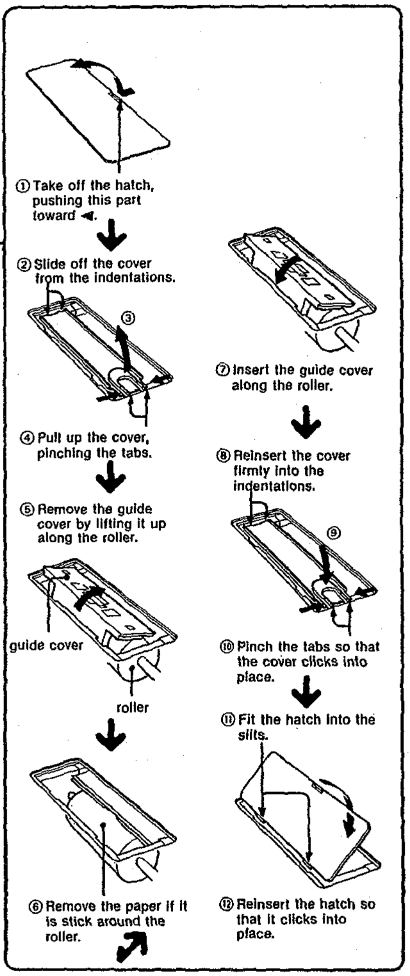
2 **Open the ribbon compartment lid and remove the color ribbon cassette.**



3 **Take off the upper hatch for checking a paper jam and check whether a sheet is stuck inside the printer.**

If you find a jammed sheet, pull it out.





① Take off the hatch, pushing this part toward ◄.

② Slide off the cover from the indentations.

④ Pull up the cover, pinching the tabs.

⑤ Remove the guide cover by lifting it up along the roller.

⑥ Remove the paper if it is stick around the roller.

⑦ Insert the guide cover along the roller.

⑧ Reinsert the cover firmly into the indentations.

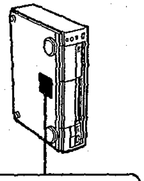
⑩ Pinch the tabs so that the cover clicks into place.

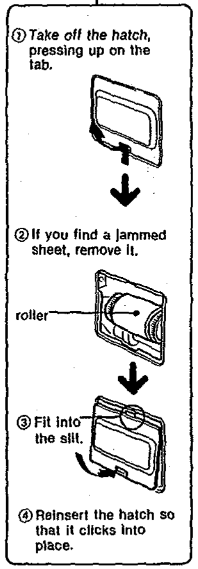
⑪ Fit the hatch into the slits.

⑫ Reinsert the hatch so that it clicks into place.

4 **Take off the bottom hatch for checking a paper jam and check whether a sheet is stuck inside the printer. If you find a jammed sheet, pull it out.**

Stand the unit on its *right side* as illustrated.





① *Take off the hatch,* pressing up on the tab.

② If you find a jammed sheet, remove it.

③ Fit into the slit.

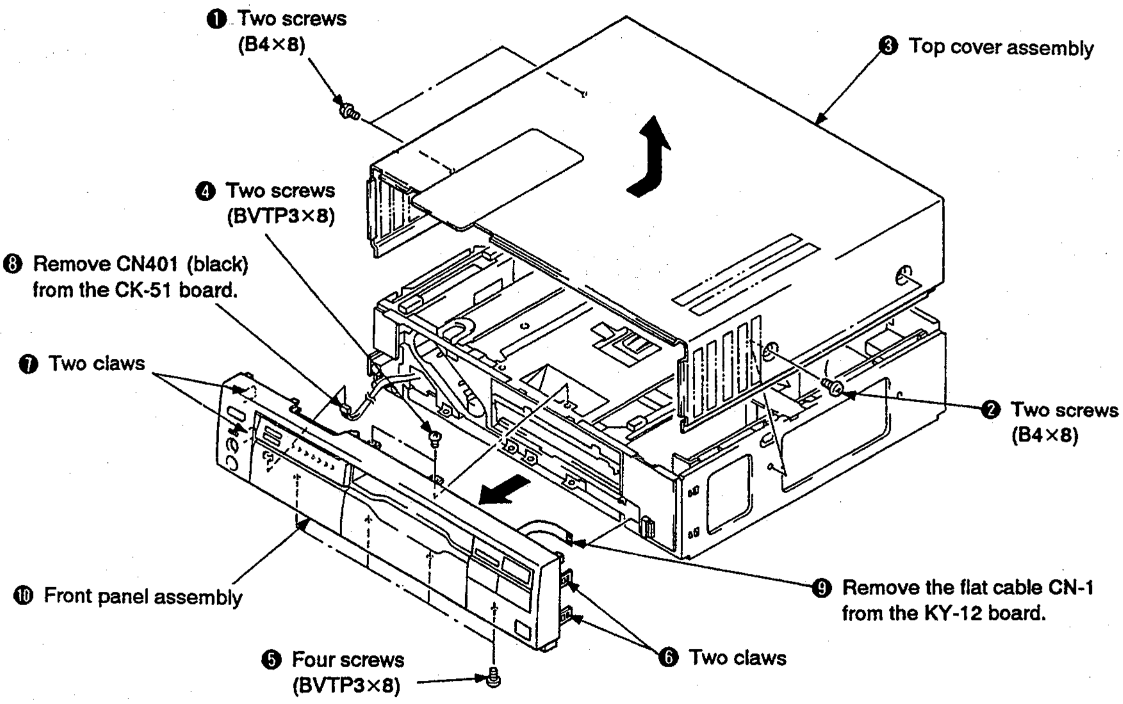
④ Reinsert the hatch so that it clicks into place.

5 **Remove the paper tray and check to see if the print paper is placed properly.**

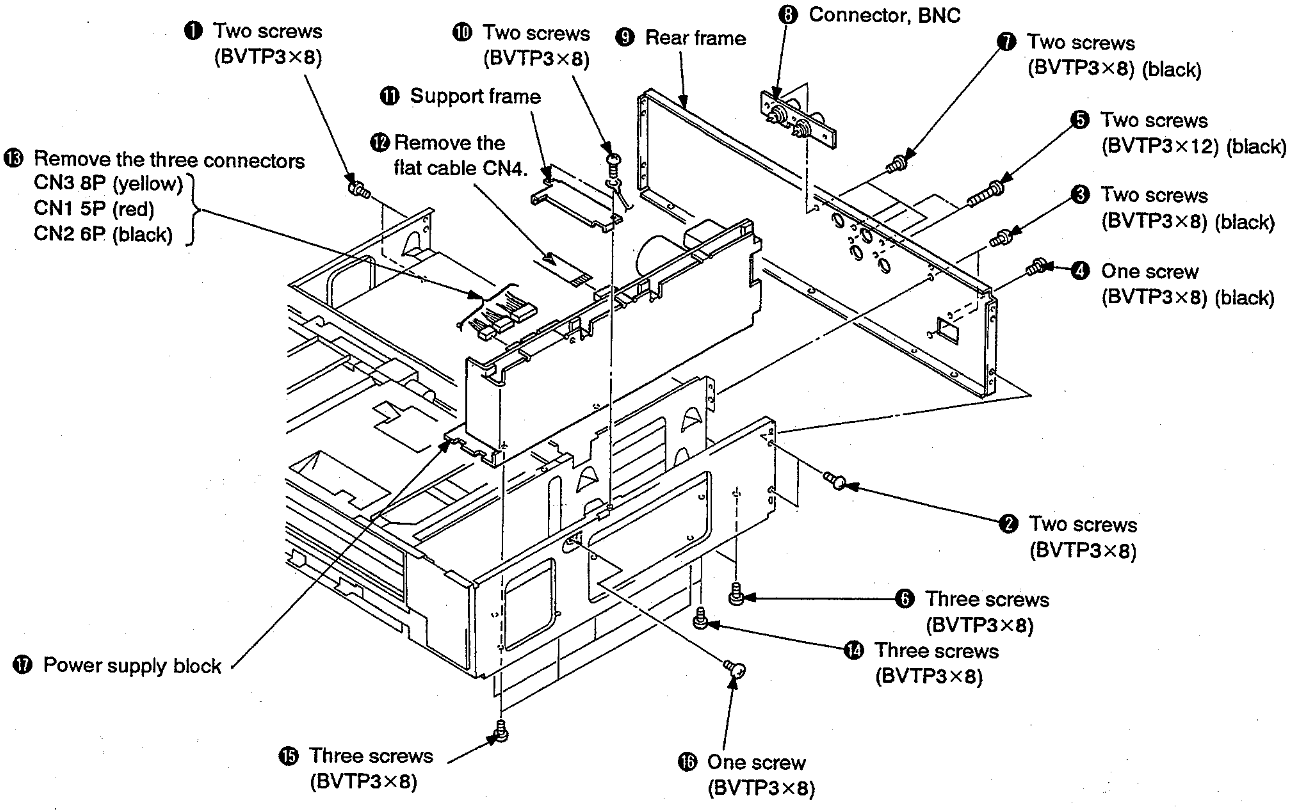
6 **Reinsert the color ribbon cassette and turn on the power.**

SECTION 2
DISASSEMBLY

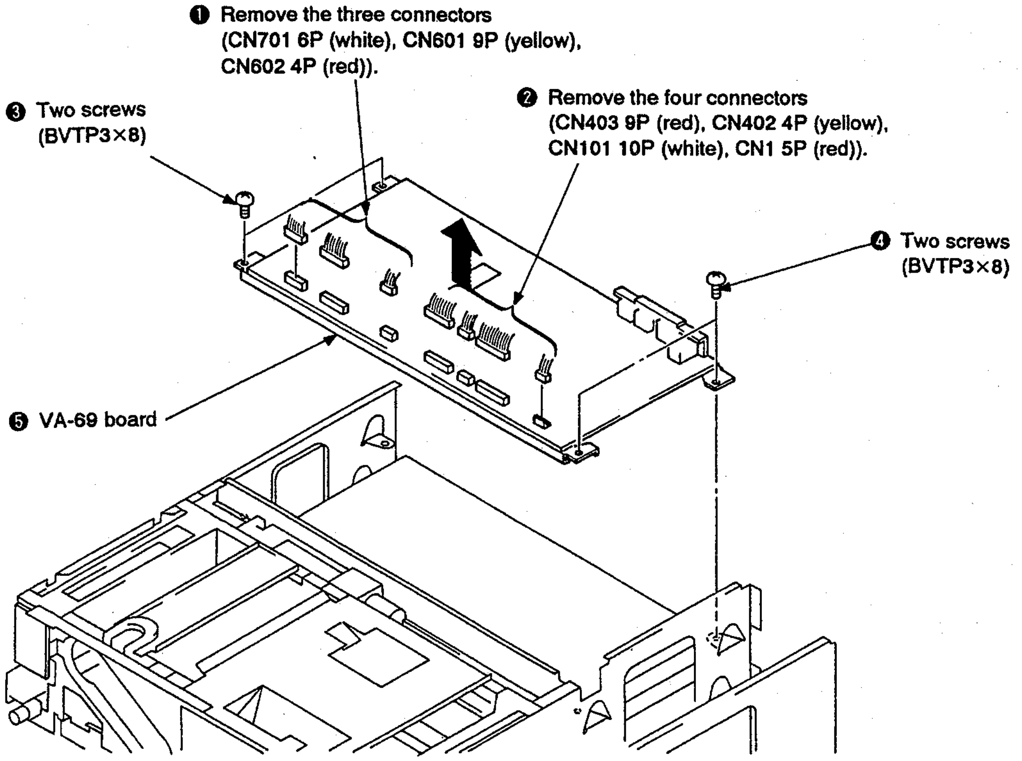
2-1. CABINET SECTION REMOVAL


❶ Two screws (B4×8)
❸ Top cover assembly
❹ Two screws (BVTP3×8)
❽ Remove CN401 (black) from the CK-51 board.
❼ Two claws
❷ Two screws (B4×8)
❾ Remove the flat cable CN-1 from the KY-12 board.
❿ Front panel assembly
❺ Four screws (BVTP3×8)
❻ Two claws

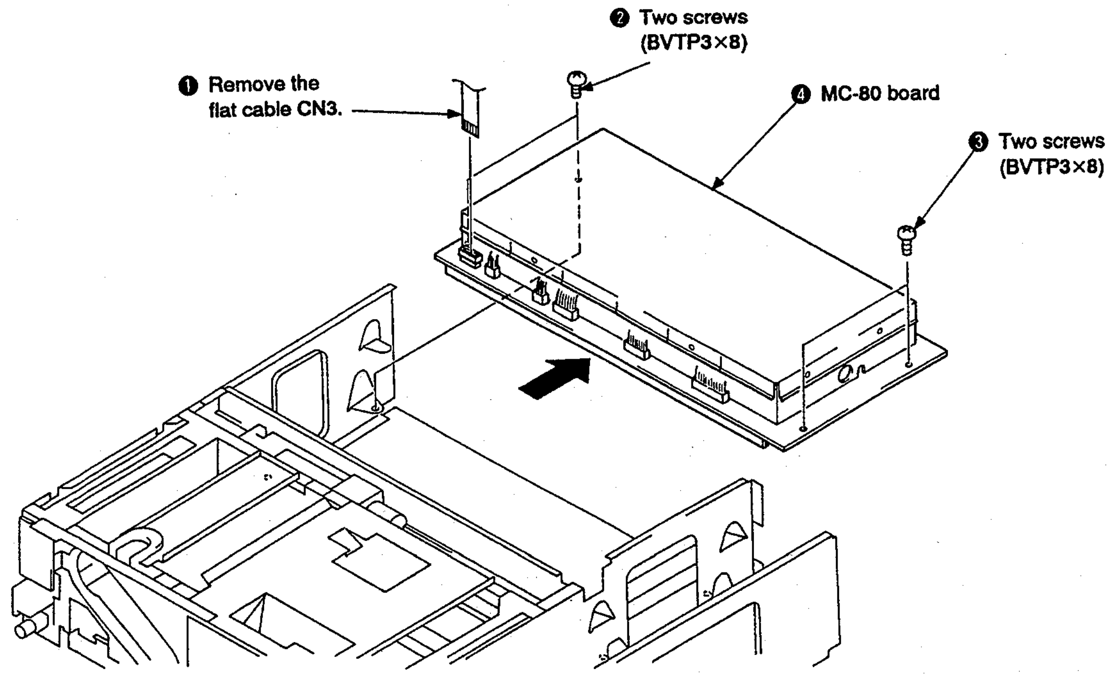
2-2. REAR FRAME AND POWER SUPPLY BLOCK REMOVAL


❽ Connector, BNC
❶ Two screws (BVTP3×8)
❿ Two screws (BVTP3×8)
❾ Rear frame
❼ Two screws (BVTP3×8) (black)
⓫ Support frame
⓬ Remove the flat cable CN4.
❺ Two screws (BVTP3×12) (black)
⓭ Remove the three connectors CN3 8P (yellow) CN1 5P (red) CN2 6P (black)
❸ Two screws (BVTP3×8) (black)
❹ One screw (BVTP3×8) (black)
❷ Two screws (BVTP3×8)
❻ Three screws (BVTP3×8)
⓮ Three screws (BVTP3×8)
⓱ Power supply block
⓯ Three screws (BVTP3×8)
⓰ One screw (BVTP3×8)

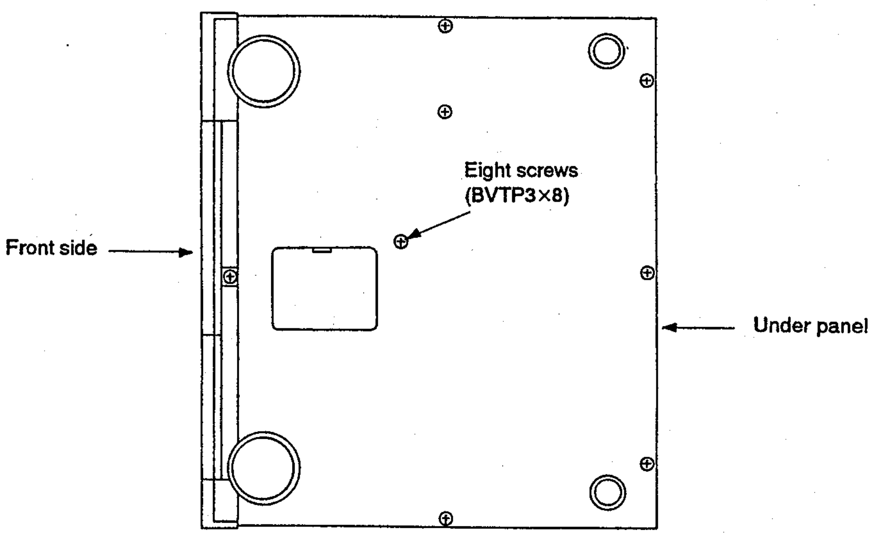
2-3. VA-69 BOARD REMOVAL


❶ Remove the three connectors (CN701 6P (white), CN601 9P (yellow), CN602 4P (red)).
❸ Two screws (BVTP3×8)
❷ Remove the four connectors (CN403 9P (red), CN402 4P (yellow), CN101 10P (white), CN1 5P (red)).
❹ Two screws (BVTP3×8)
❺ VA-69 board

2-4. MC-80 BOARD REMOVAL

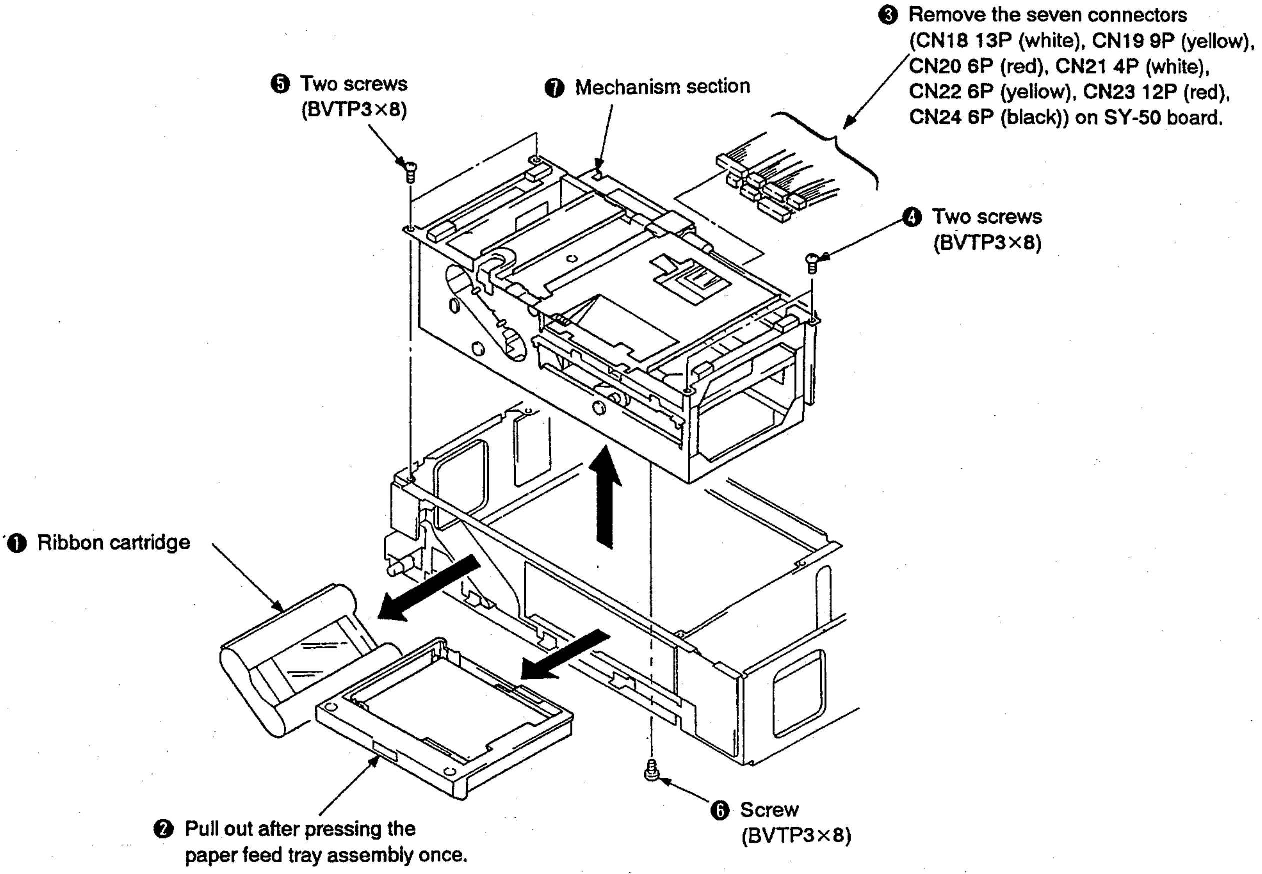

❷ Two screws (BVTP3×8)
❶ Remove the flat cable CN3.
❹ MC-80 board
❸ Two screws (BVTP3×8)

Note: When checking the MC-80 board, the under panel can be removed by removing the eight screws (BVTP3×8) from the bottom side of unit.


Eight screws
(BVTP3×8)
Front side
Under panel

2-5. MECHANISM SECTION REMOVAL

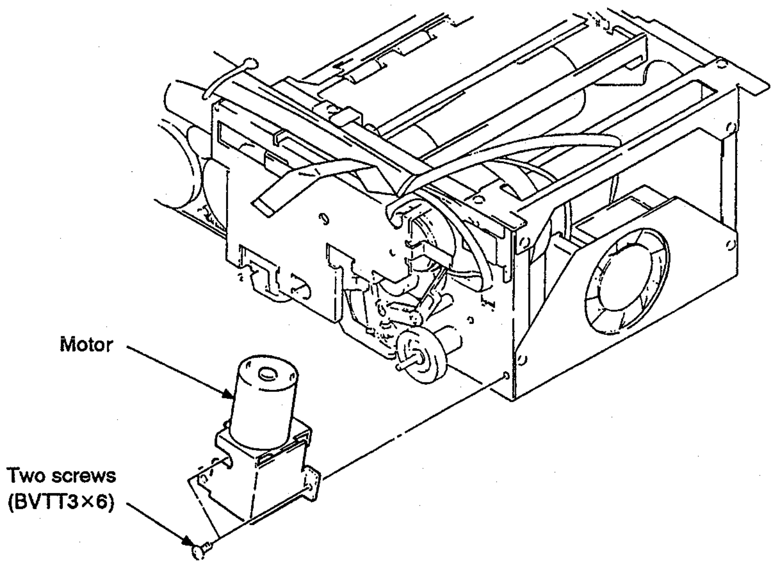
Note: Perform this mechanism section removal after removing the front panel.


❸ Remove the seven connectors (CN18 13P (white), CN19 9P (yellow), CN20 6P (red), CN21 4P (white), CN22 6P (yellow), CN23 12P (red), CN24 6P (black)) on SY-50 board.
❺ Two screws (BVTP3×8)
❼ Mechanism section
❹ Two screws (BVTP3×8)
❶ Ribbon cartridge
❷ Pull out after pressing the paper feed tray assembly once.
❻ Screw (BVTP3×8)

SECTION 3
MECHANISM SECTION REPLACEMENT

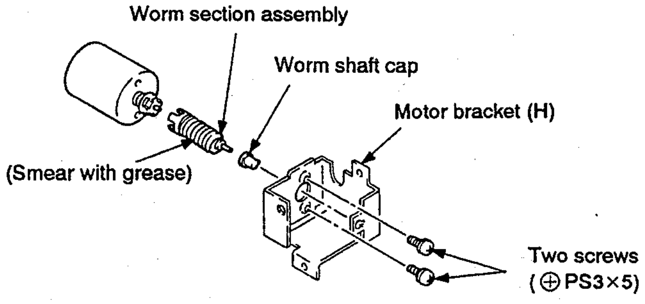
3-1. HEAD DRIVING MOTOR REPLACEMENT

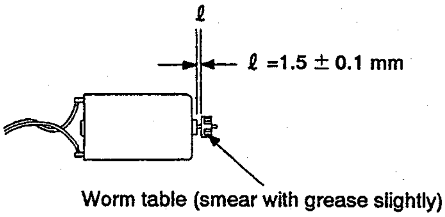
1) Remove the two screws and the head driving assembly.


Motor
Two screws
(BVTT3×6)

2) Remove the two screws, and the motor from the motor bracket (H).
3) Replace the motor.

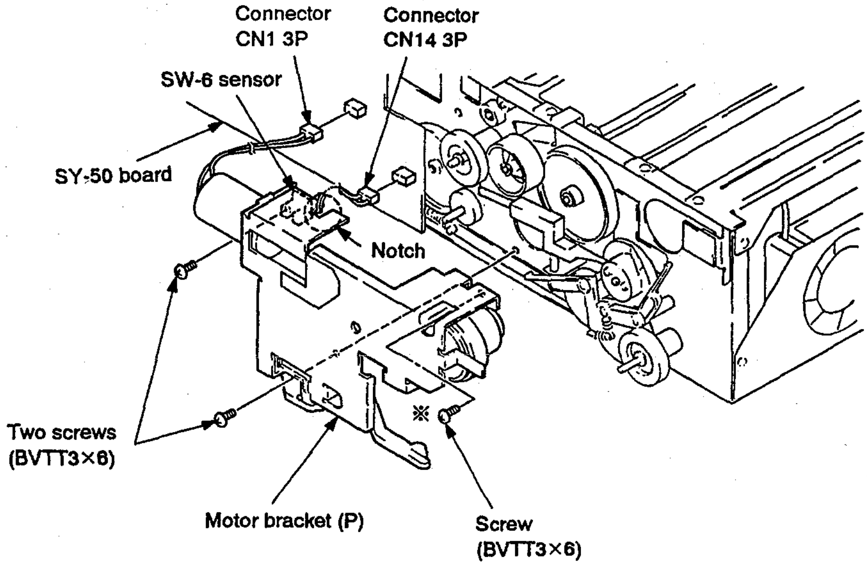
Note: Smear the worm and worm table with Sony grease (SGL-701) (7-622-010-08) when installing.


Worm section assembly
Worm shaft cap
Motor bracket (H)
(Smear with grease)
Two screws
(⊕PS3×5)


ℓ
ℓ =1.5 ± 0.1 mm
Worm table (smear with grease slightly)

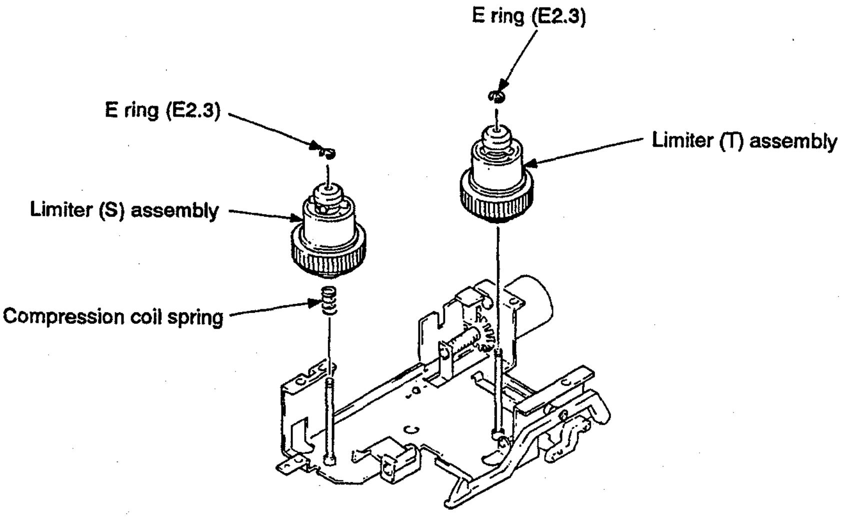
3-2. LIMITER ASSEMBLY REPLACEMENT

1) Remove the three screws and motor bracket (P).
2) Remove the connector CN1 from the motor on the SY-50 board.
3) Remove the connector CN14 of the SW-6 sensor from the SY-50 board.


Connector CN1 3P
Connector CN14 3P
SW-6 sensor
SY-50 board
Notch
Two screws (BVTT3×6)
※
Motor bracket (P)
Screw (BVTT3×6)

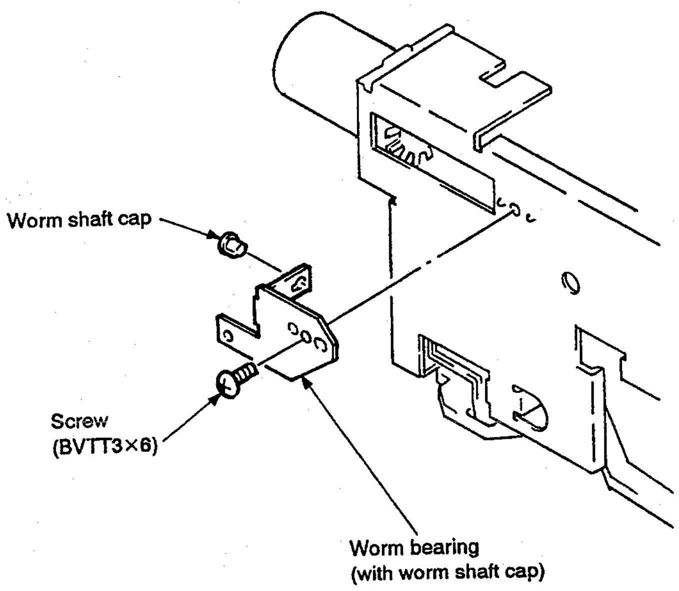
Note: 1) When removing the screw with *, be careful not to touch the gear with the screwdriver.
2) When installing, the harness should be inserted into the notch.

4) Remove the E ring (E2.3), limiter (S) assembly and compression coil spring in order.
5) Remove the E ring (E2.3) and limiter (T) assembly.


E ring (E2.3)
E ring (E2.3)
Limiter (T) assembly
Limiter (S) assembly
Compression coil spring

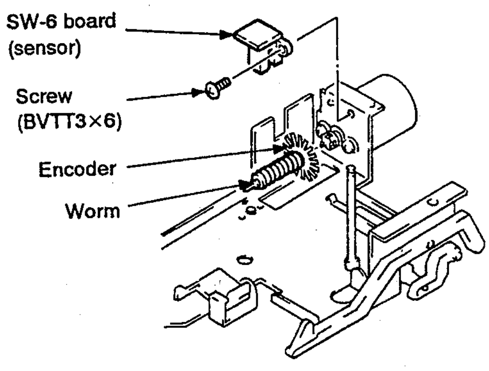
3-3. PLATEN DRIVING MOTOR REPLACEMENT

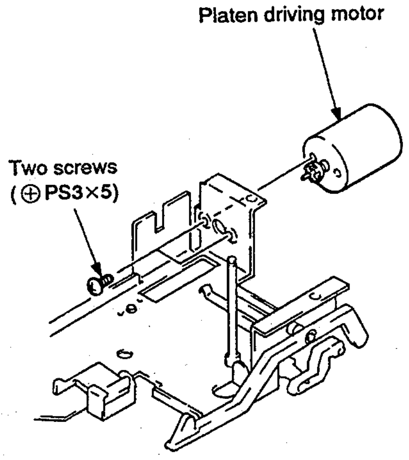
1) Perform steps 1) to 4) of "3-2. LIMITER ASSEMBLY REPLACEMENT".
2) Remove the screw and then the worm bearing and worm shaft cap.

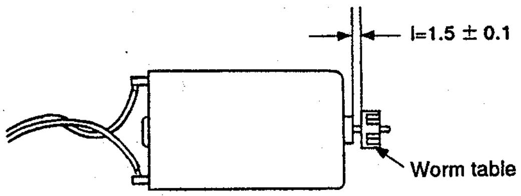

Worm shaft cap
Screw
(BVTT3×6)
Worm bearing
(with worm shaft cap)

3) Remove the screw and then the SW-6 board (sensor), encoder and worm.
4) Remove the two screws and then the platen driving motor.

Note: Smear the worm and worm table with Sony grease (SG-701) (7-622-010-08).


SW-6 board
(sensor)
Screw
(BVTT3×6)
Encoder
Worm

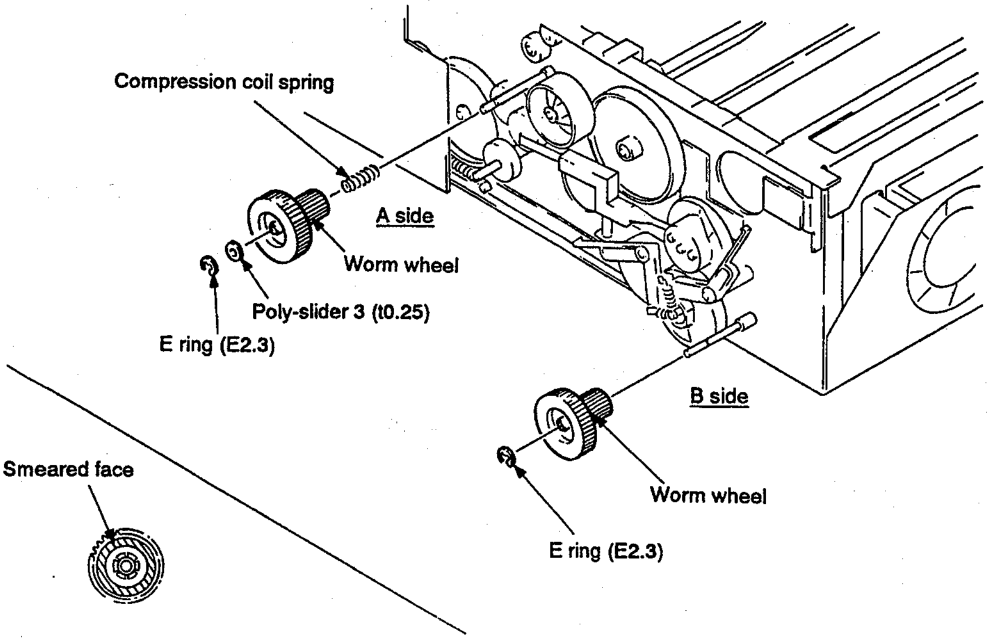

Platen driving motor
Two screws
(⊕PS3×5)


l=1.5 ± 0.1
Worm table

3-4. WORM WHEEL REPLACEMENT

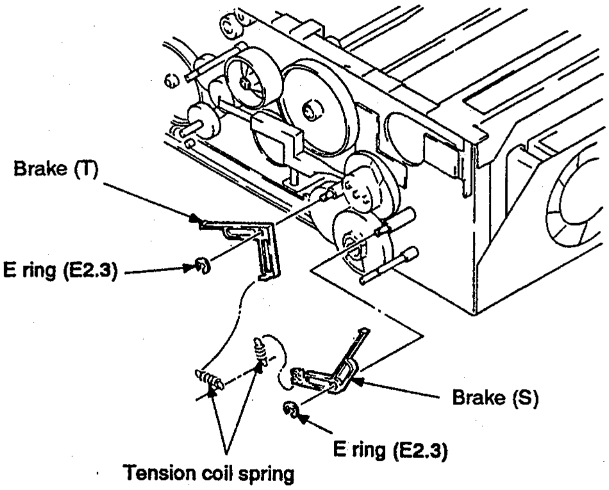
1) Remove the head driving assembly. (Refer to 3-1. 1))
2) Remove the motor bracket (P). (Refer to 3-2. 1))
3) A side
   Remove the E ring (E2.3), poly-slider 3 (t0.25), worm wheel, compression coil spring in order.
   B side
   Remove the E ring (E2.3) and worm wheel in order.

Note: When installing, smear the outside of the worm wheel of side A with Sony grease (SGL-701) (7-662-010-08) as shown in the figure below.


Compression coil spring
A side
Worm wheel
Poly-slider 3 (t0.25)
E ring (E2.3)
B side
Worm wheel
E ring (E2.3)
Smeared face

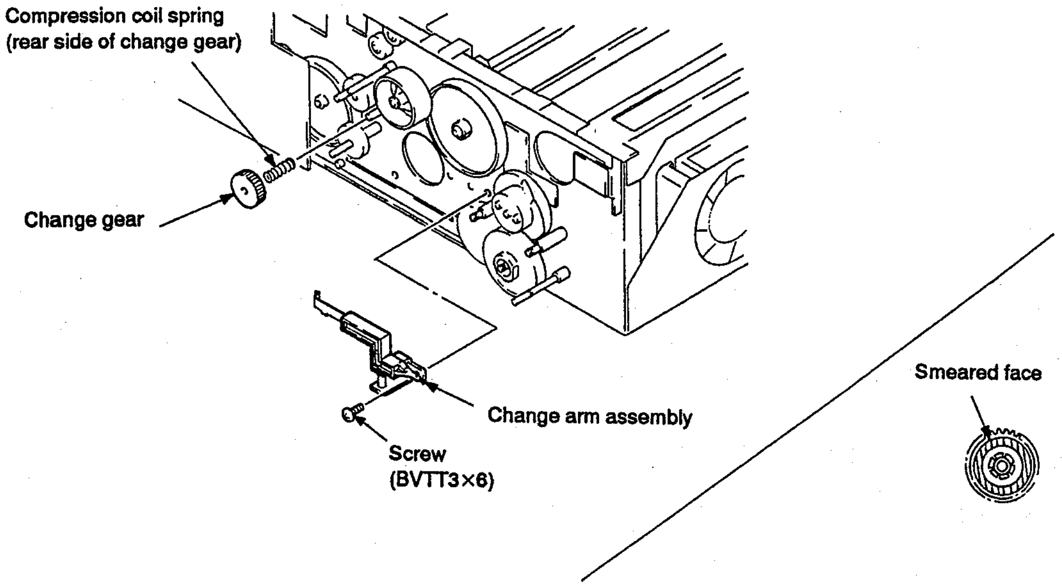
3-5. BRAKE REPLACEMENT

1) Remove the head driving assembly. (Refer to 3-1. 1))
2) Remove the motor bracket (P). (Refer to 3-2. 1))
3) Remove the two E rings (E2.3) and two tension coil springs and then brake (T) and brake (S).


Brake (T)
E ring (E2.3)
Brake (S)
E ring (E2.3)
Tension coil spring

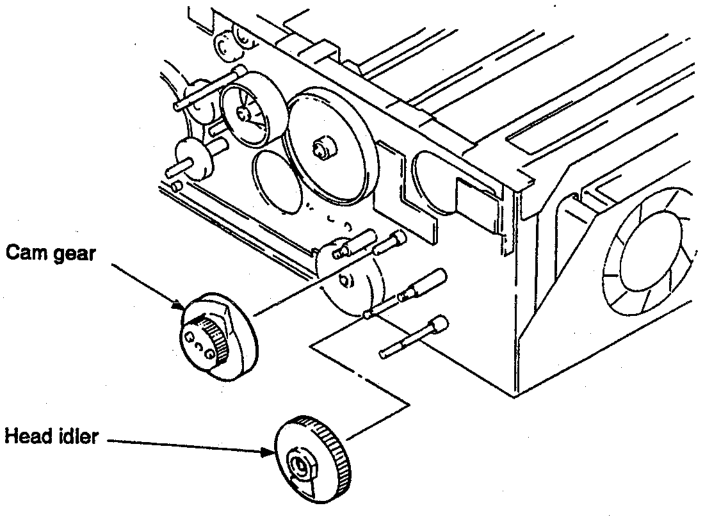
3-6. CHANGE GEAR REPLACEMENT

1) Remove motor bracket (P). (Refer to 3-2. 1))
2) Remove brake (T). (Refer to 3-5. 3))
3) Remove one screw and change arm assembly.
4) Remove the change gear and compression coil spring.


Compression coil spring
(rear side of change gear)
Change gear
Change arm assembly
Screw
(BVTT3×6)
Smeared face

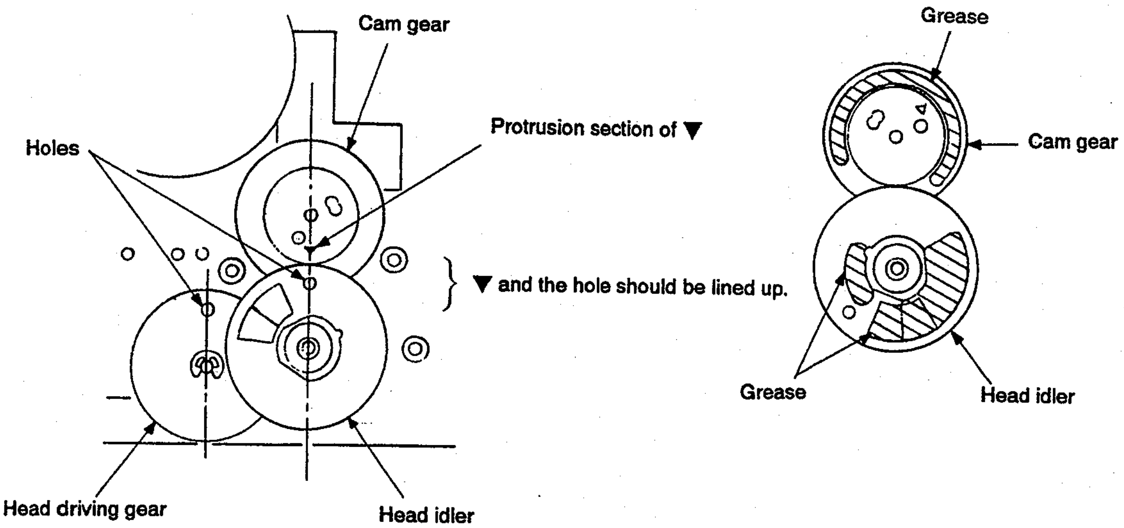
3-7. CAM GEAR AND HEAD IDLER REPLACEMENT

1) Remove the head driving assembly. (Refer to 3-1. 1))
2) Remove the motor bracket (P). (Refer to 3-2. 1))
3) Remove the worm wheel. (Refer to 3-4. 3))
4) Remove the brake. (Refer to 3-5.)
5) Remove the change arm. (Refer to 3-6.)
6) Remove the head idler and cam gear in order.


Cam gear
Head idler

Note: 1) When installing, turn the head driving gear in the clockwise direction and set to the condition in which the hole becomes vertical against the center. Then insert the cam gear with ▼ mark turned down and insert the head idler so that the hole lines up with ▼ of the cam gear, as shown in the figure below.

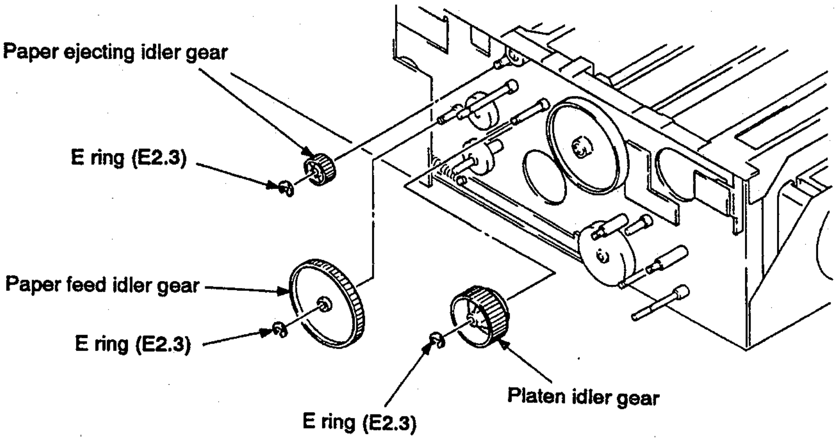
2) Smear the cam gear and head idler with Sony grease (SGL-701) (7-662-010-08).


Cam gear
Holes
Protrusion section of ▼
▼ and the hole should be lined up.
Head driving gear
Head idler
Grease
Cam gear
Grease
Head idler

3-8. IDLER GEAR REPLACEMENT

1) Remove motor bracket (P). (Refer to 3-2. 1))
2) Remove the worm wheel (A side). (Refer to 3-4. 3))
3) Remove brake (T). (Refer to 3-5. 3))
4) Remove the change arm assembly. (Refer to 3-6. 3))
5) Remove the three E rings (E2.3) and then paper feed idler gear, paper ejecting idler gear, platen idler gear.

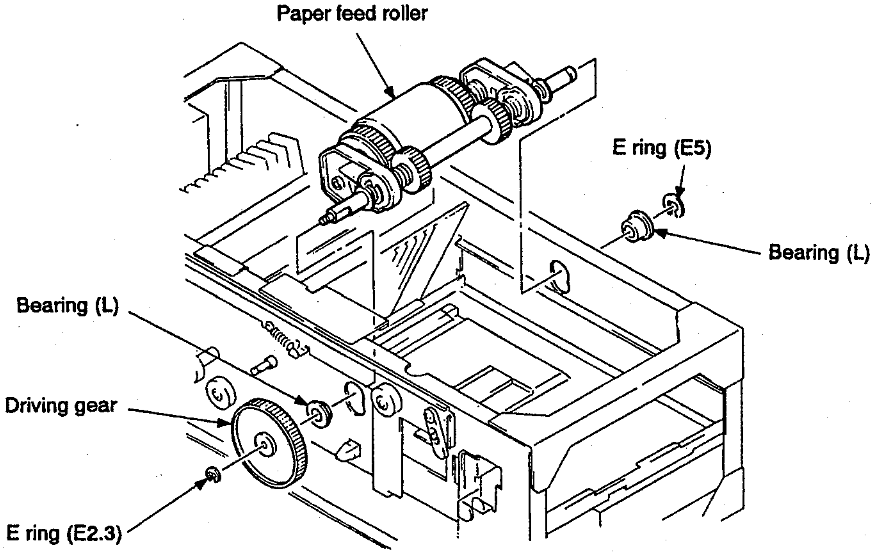
Note: When installing, be careful not to damage the gear section of the platen gear.


Paper ejecting idler gear
E ring (E2.3)
Paper feed idler gear
E ring (E2.3)
Platen idler gear
E ring (E2.3)

3-9. PAPER FEED ROLLER ASSEMBLY REPLACEMENT

1) Remove the E ring (E2.3) and then the driving gear and bearing (L).
2) Remove the E ring (E5) and then the bearing (L) and paper feed roller.

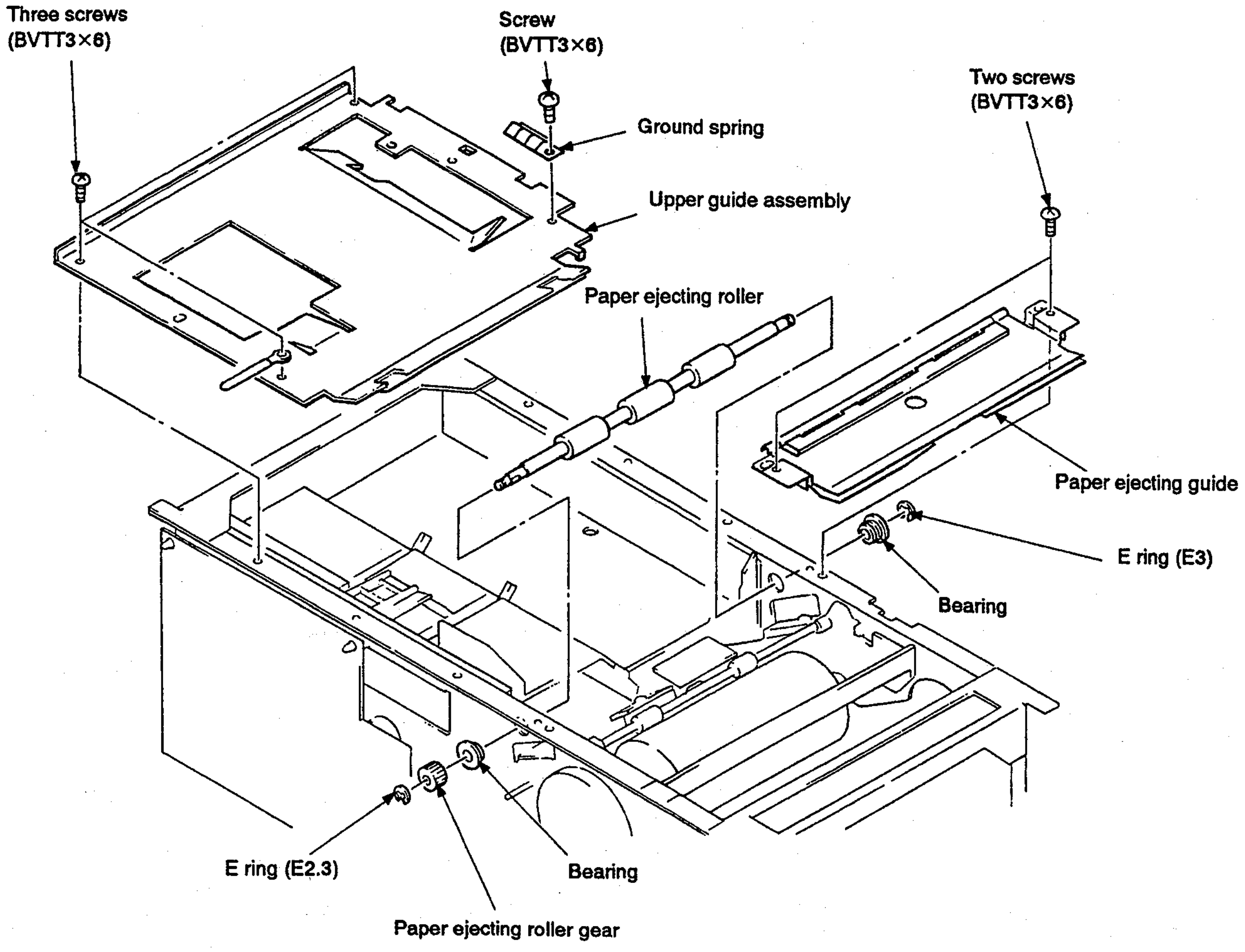
Note: When installing, be careful of the following.
  1) Do not touch the rubber section of the paper feed roller.
  2) Face the rubber roller of the paper feed roller towards the fan.
  3) Adjust the driving gear to the D cut when inserting it into the shaft.


Paper feed roller
E ring (E5)
Bearing (L)
Bearing (L)
Driving gear
E ring (E2.3)

3-10. PAPER EJECTING ROLLER REPLACEMENT

1) Remove the six screws and then the upper guide assembly, ground spring and paper ejecting guide.
2) Remove the E ring (E2.3) and then the paper ejecting roller gear and bearing.
3) Remove the E ring (E3), bearing and paper ejecting roller in order.

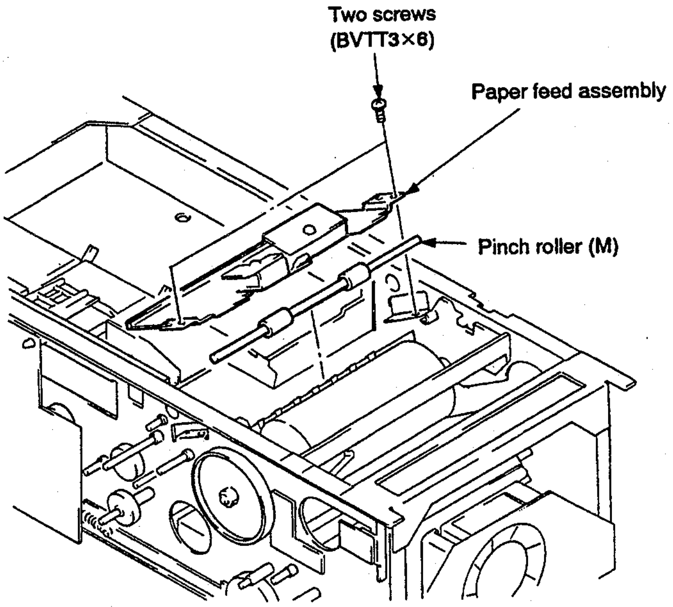
Note: Adjust the paper ejecting roller gear to the D cut when inserting it into the shaft to install.

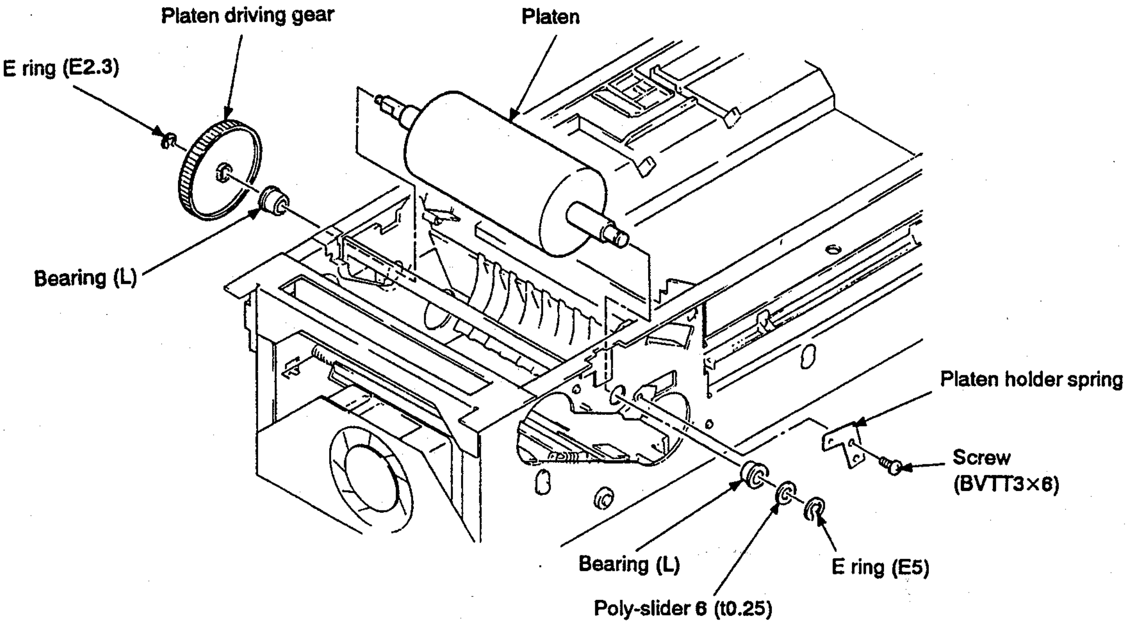

Three screws
(BVTT3×6)
Screw
(BVTT3×6)
Ground spring
Two screws
(BVTT3×6)
Upper guide assembly
Paper ejecting roller
Paper ejecting guide
E ring (E3)
Bearing
E ring (E2.3)
Bearing
Paper ejecting roller gear

3-11. PLATEN REPLACEMENT

1) Remove motor bracket (P). (Refer to 3-2. 1))
2) Remove the worm wheel (A side). (Refer to 3-4. 3))
3) Remove brake (T). (Refer to 3-5. 3))
4) Remove the change arm assembly. (Refer to 3-6. 3))
5) Remove the platen idler gear. (Refer to 3-8. 5))
6) Remove the two screws and paper feed guide assembly.
7) Remove pinch roller (M).
8) Remove the E ring (E2.3) and then the platen, driving gear and bearing.
9) Remove the screw and then the platen holder spring.
10) Remove the E ring (E5) and then the poly-slider 6 (t0.25), bearing (L) and platen in order.

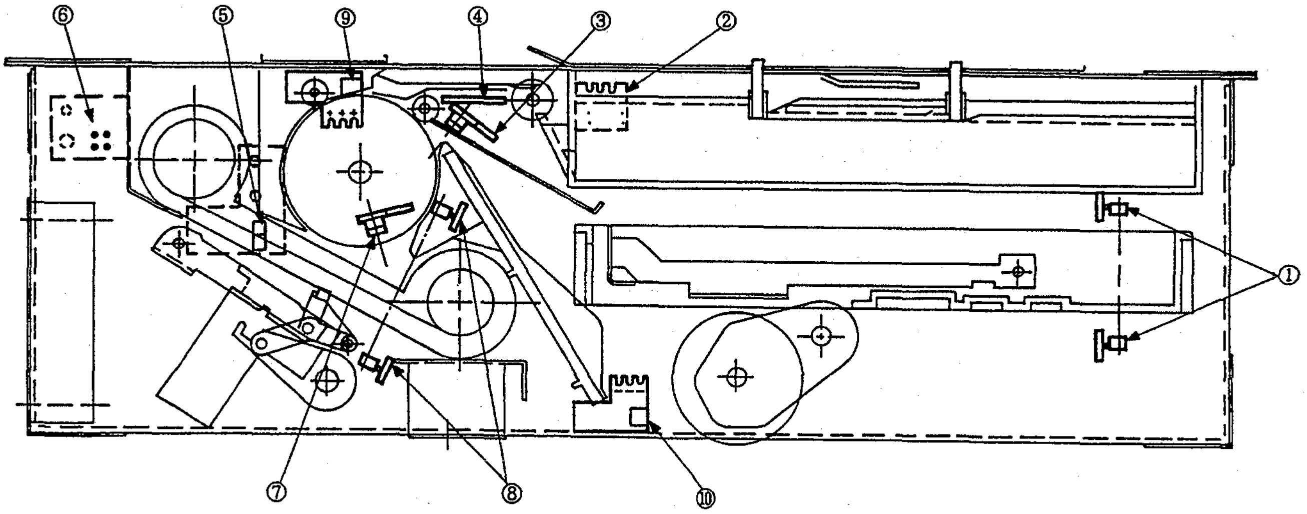
Note: When installing, be careful of the following.
1) Clean the rubber section of the platen.
2) Always smear the platen driving gear with Sony grease (SGL-701) (7-662-010-08) and adjust the gear to the D cut when inserting it into the shaft.


Two screws
(BVTT3×6)
Paper feed assembly
Pinch roller (M)


Platen driving gear
Platen
E ring (E2.3)
Bearing (L)
Platen holder spring
Screw
(BVTT3×6)
Bearing (L)
E ring (E5)
Poly-slider 6 (t0.25)

SECTION 4
EACH SENSOR FUNCTION

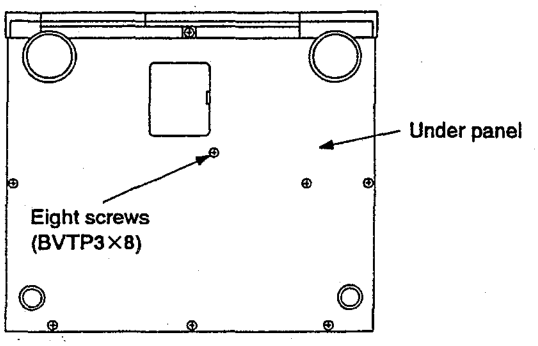
4-1. EACH SENSOR POSITION



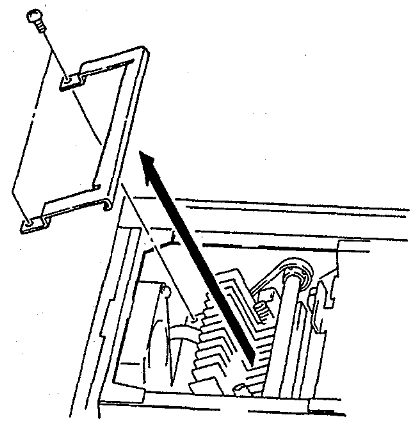
① Paper tray sensor
② FG sensor
③ Paper feed sensor
④ Eject sensor
⑤ Cam, home sensor
⑥ Cartridge sensor
⑦ Paper set sensor
⑧ Ribbon sensor
⑨ Inter lock sensor (TOP)
⑩ Inter lock sensor (BOTTOM)

Replacing procedure

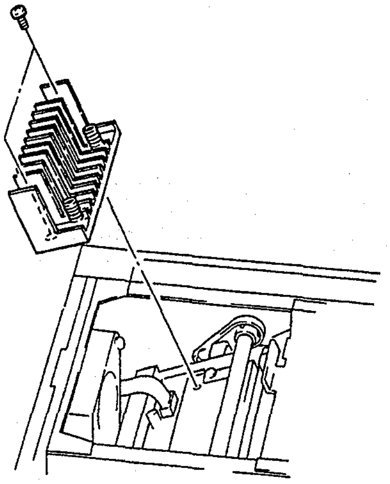
1. Remove the under panel on the bottom side of this unit.



2. Remove head guide (S).

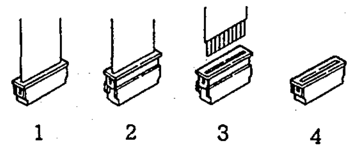


3. Remove the heat sink.



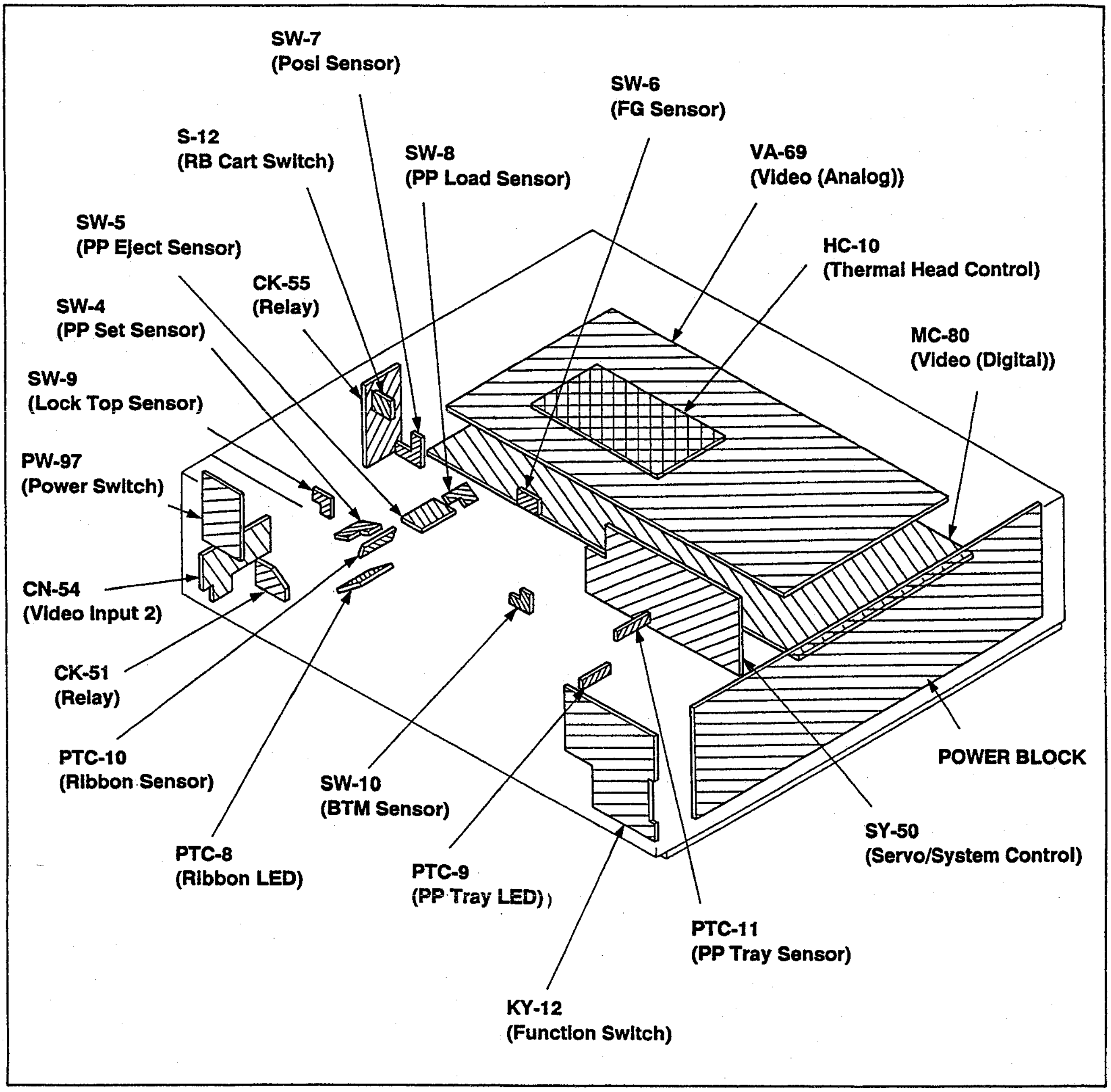
4. Replace the connector lock section of the thermal head after pulling out the flat cable as shown in the figure below.

- How to pull out the connector

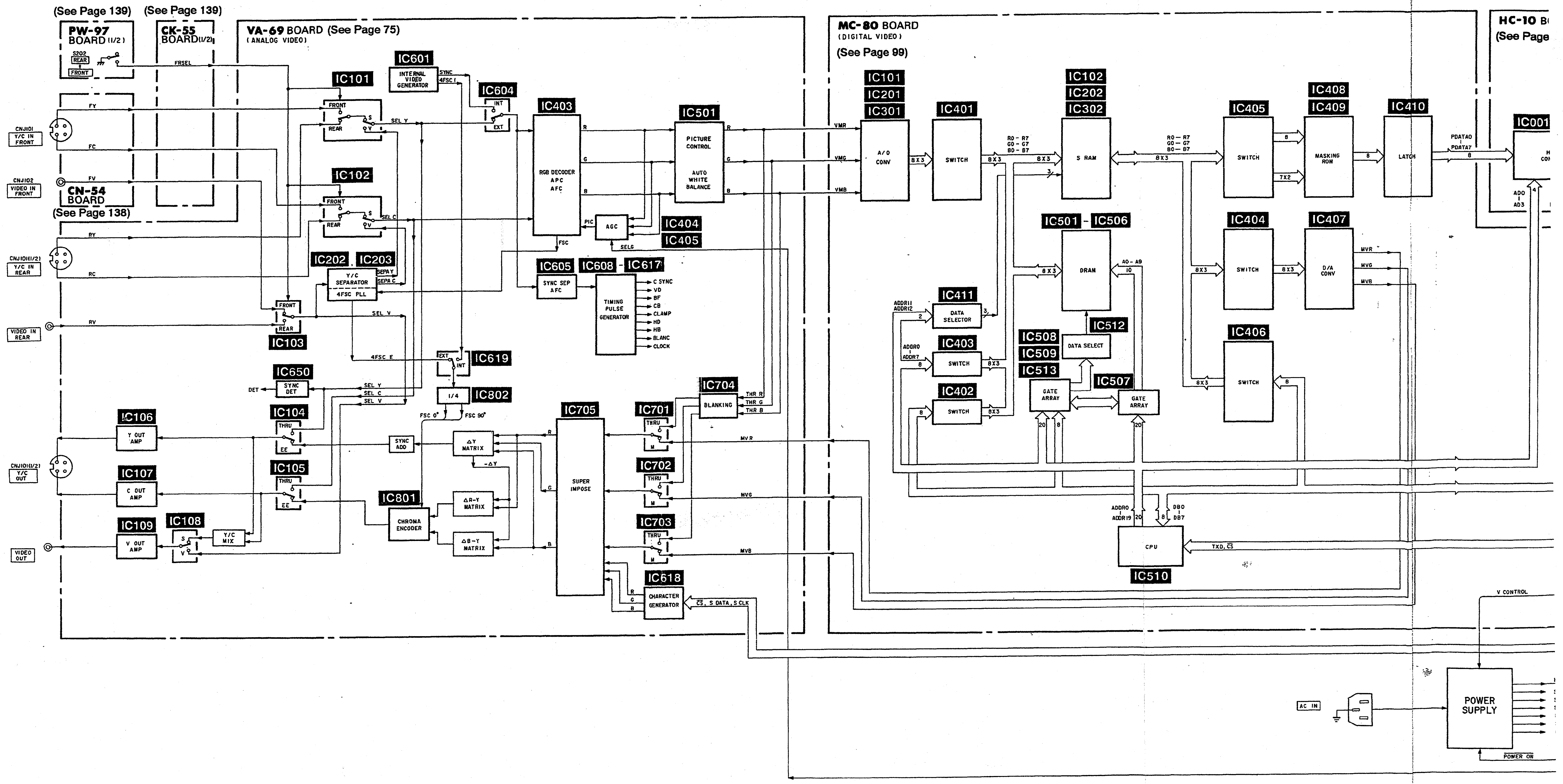


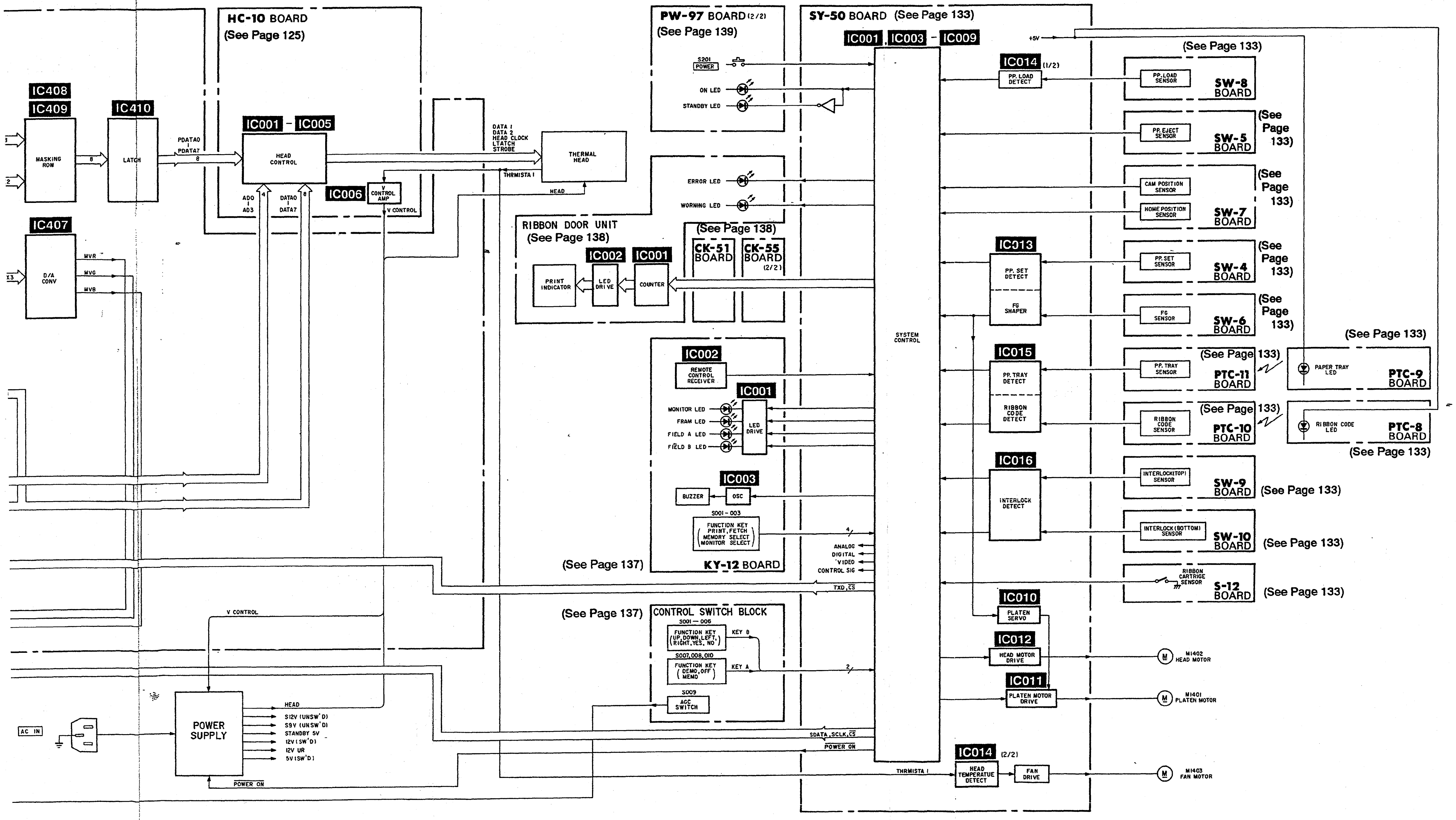
SECTION 5
DIAGRAMS

5-1. CIRCUIT BOARDS LOCATION

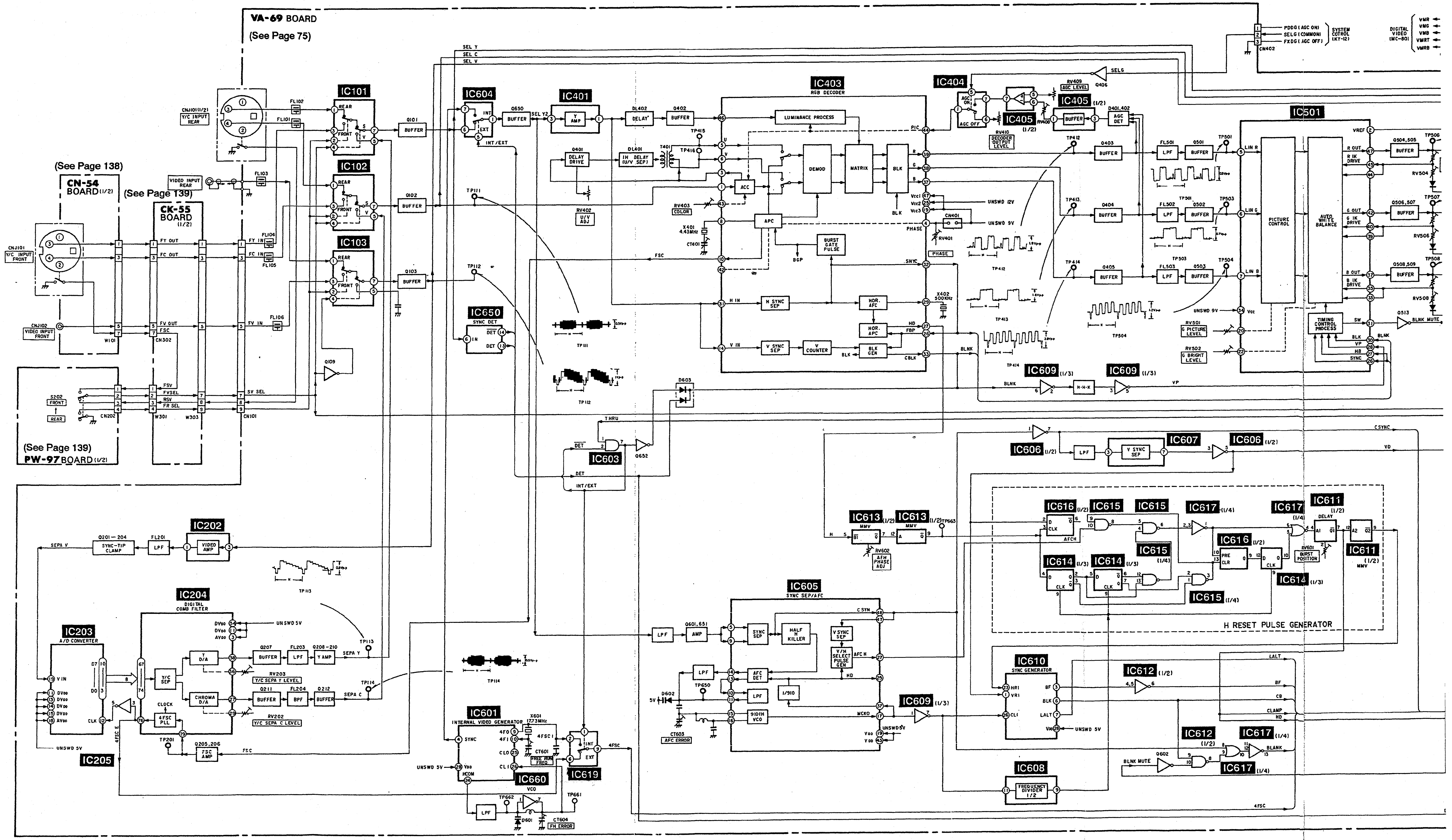

SW-7
(Posi Sensor)
SW-6
(FG Sensor)
S-12
(RB Cart Switch)
SW-8
(PP Load Sensor)
VA-69
(Video (Analog))
SW-5
(PP Eject Sensor)
HC-10
(Thermal Head Control)
CK-55
(Relay)
SW-4
(PP Set Sensor)
MC-80
(Video (Digital))
SW-9
(Lock Top Sensor)
PW-97
(Power Switch)
CN-54
(Video Input 2)
CK-51
(Relay)
POWER BLOCK
PTC-10
(Ribbon Sensor)
SW-10
(BTM Sensor)
SY-50
(Servo/System Control)
PTC-8
(Ribbon LED)
PTC-9
(PP Tray LED)
PTC-11
(PP Tray Sensor)
KY-12
(Function Switch)

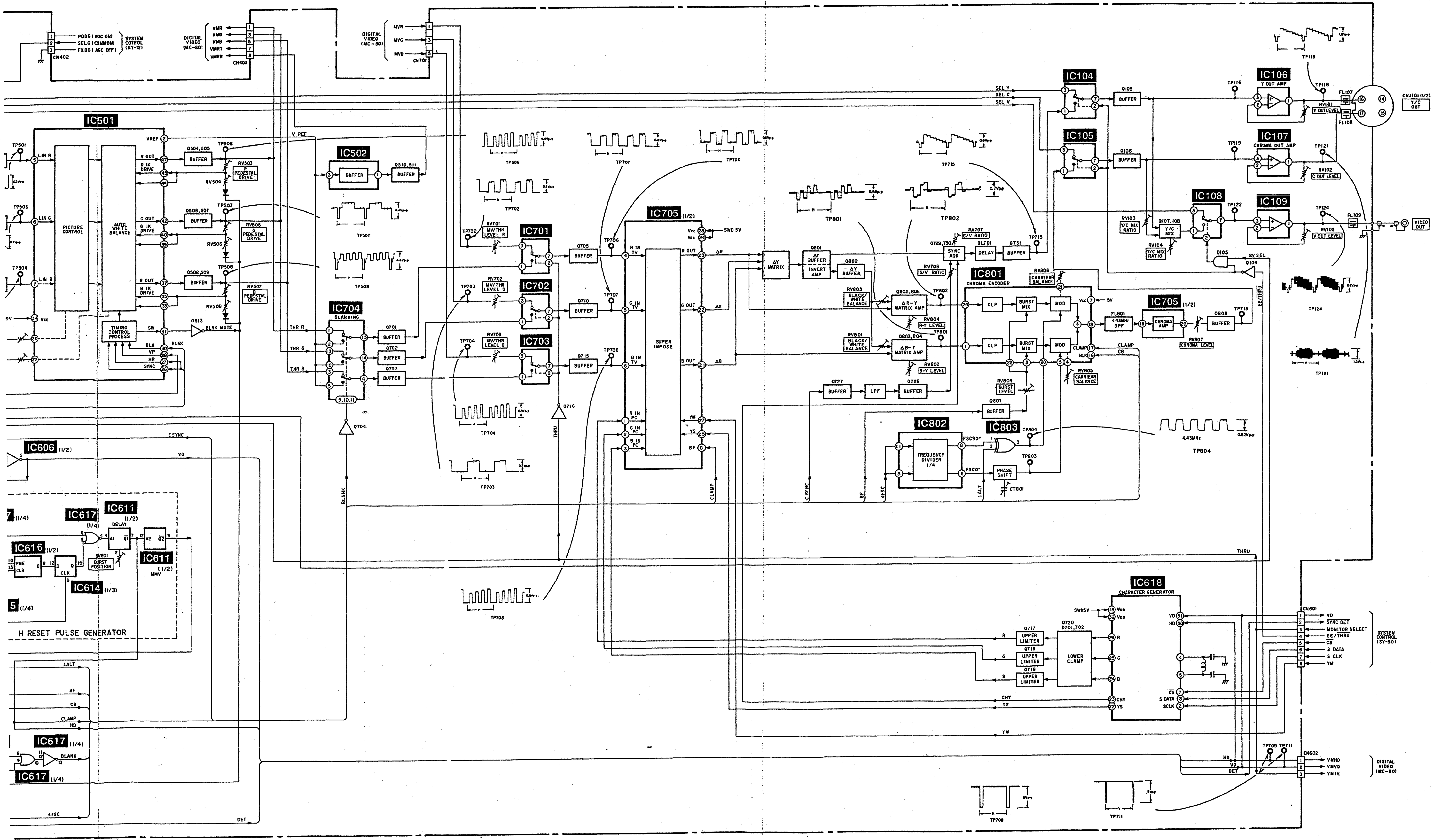
5-2. OVERALL BLOCK DIAGRAM


(See Page 139)
PW-97 BOARD (1/2)
S202 REAR FRONT
(See Page 139)
CK-55 BOARD (1/2)
FRSEL
CN-54 BOARD
(See Page 138)
VA-69 BOARD (See Page 75)
(ANALOG VIDEO)
CNJ101 Y/C IN FRONT
CNJ102 VIDEO IN FRONT
CNJ101(1/2) Y/C IN REAR
VIDEO IN REAR
CNJ101(1/2) Y/C OUT
VIDEO OUT
FY
FC
FV
RY
RC
RV
IC101
IC102
IC103
IC104
IC105
IC106
IC107
IC108
IC109
IC202 IC203
Y/C SEPARATOR
4FSC PLL
SEPA Y
SEPA C
SEL Y
SEL C
SEL V
FRONT
REAR
THRU
EE
Y OUT AMP
C OUT AMP
V OUT AMP
Y/C MIX
IC601
INTERNAL VIDEO GENERATOR
SYNC
4FSC I
IC604
INT
EXT
IC403
RGB DECODER APC AFC
FSC
IC501
PICTURE CONTROL
AUTO WHITE BALANCE
R
G
B
PIC
AGC
SELG
IC404
IC405
IC605
SYNC SEP AFC
IC608 - IC617
TIMING PULSE GENERATOR
C SYNC
VD
BF
CB
CLAMP
HD
HB
BLANC
CLOCK
IC650
SYNC DET
DET
IC619
4FSC E
IC802
1/4
FSC 0°
FSC 90°
SYNC ADD
ΔY MATRIX
-ΔY
ΔR-Y MATRIX
ΔB-Y MATRIX
IC801
CHROMA ENCODER
IC705
SUPER IMPOSE
IC701
IC702
IC703
IC704
BLANKING
THR R
THR G
THR B
MVR
MVG
MVB
IC618
CHARACTER GENERATOR
CS, S DATA, S CLK
MC-80 BOARD
(DIGITAL VIDEO)
(See Page 99)
VMR
VMG
VMB
IC101
IC201
IC301
A/D CONV
8X3
IC401
SWITCH
R0 - R7
G0 - G7
B0 - B7
IC102
IC202
IC302
S RAM
IC405
SWITCH
8
7X2
IC408
IC409
MASKING ROM
IC410
LATCH
PDATA0 | PDATA7
IC501 - IC506
DRAM
A0 - A9
10
IC404
SWITCH
IC407
D/A CONV
IC406
SWITCH
IC411
DATA SELECTOR
ADDR11
ADDR12
2
3
IC403
SWITCH
ADDR0 | ADDR7
IC402
SWITCH
IC508
IC509
IC513
GATE ARRAY
IC512
DATA SELECT
IC507
GATE ARRAY
20
ADDR0 | ADDR19
DB0 | DB7
CPU
IC510
TXD, CS
HC-10 B
(See Page
IC001
AD0 | AD3
4
V CONTROL
AC IN
POWER SUPPLY
POWER ON

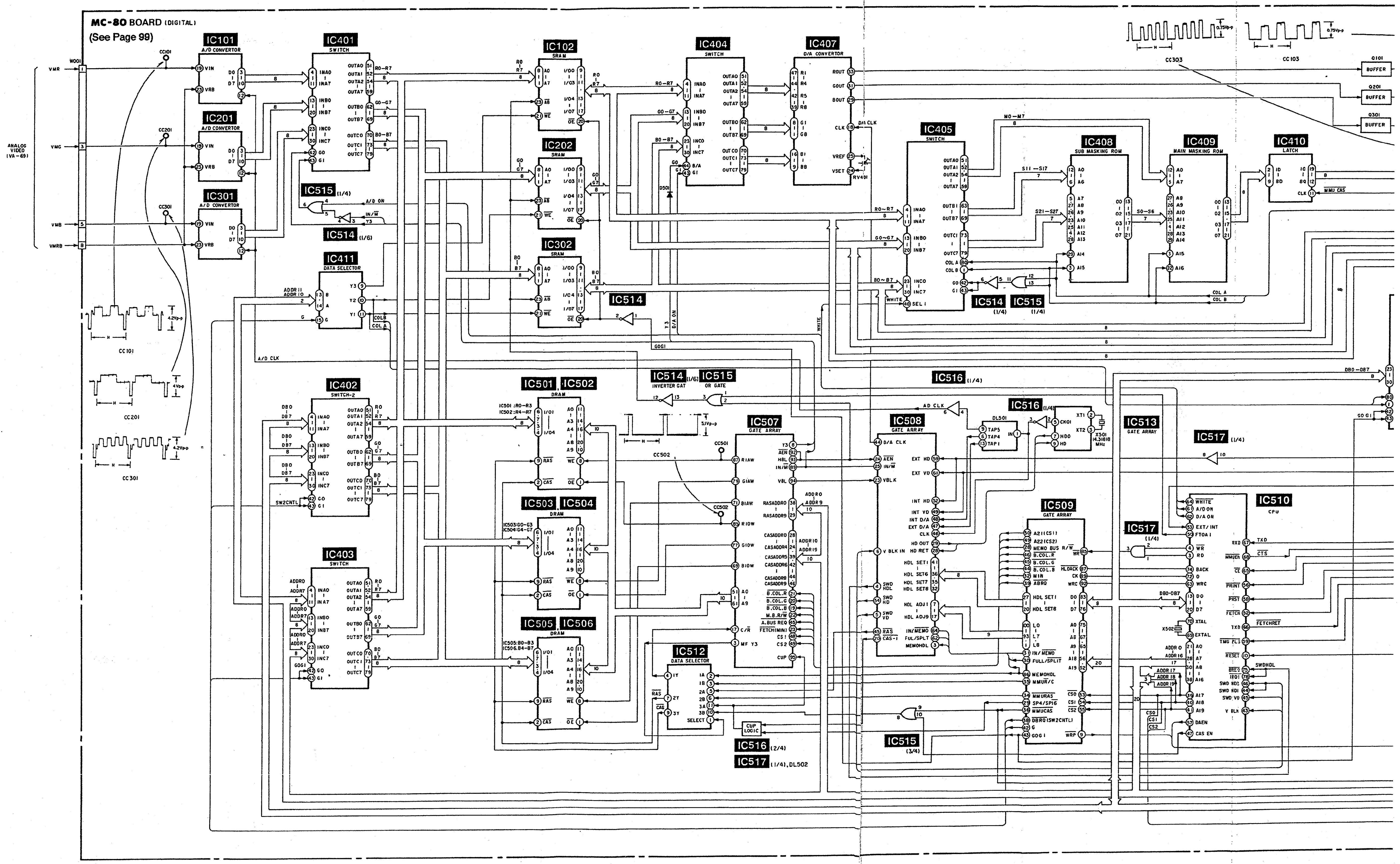

HC-10 BOARD
(See Page 125)
IC408
IC409
MASKING ROM
IC410
LATCH
PDATA0 | PDATA7
IC001 - IC005
HEAD CONTROL
AD0 | AD3
DATA0 | DATA7
IC006
V CONTROL AMP
V CONTROL
DATA 1
DATA 2
HEAD CLOCK
LTATCH
STROBE
THERMAL HEAD
THRMISTA I
HEAD
IC407
D/A CONV
MVR
MVG
MVB
PW-97 BOARD (2/2)
(See Page 139)
S201 POWER
ON LED
STANDBY LED
ERROR LED
WORNING LED
RIBBON DOOR UNIT
(See Page 138)
IC002
IC001
PRINT INDICATOR
LED DRIVE
COUNTER
(See Page 138)
CK-51 BOARD
CK-55 BOARD (2/2)
IC002
REMOTE CONTROL RECEIVER
IC001
MONITOR LED
FRAM LED
FIELD A LED
FIELD B LED
LED DRIVE
IC003
BUZZER
OSC
S001 - 003
FUNCTION KEY (PRINT, FETCH, MEMORY SELECT, MONITOR SELECT)
(See Page 137)
KY-12 BOARD
(See Page 137)
CONTROL SWITCH BLOCK
S001 — 006
FUNCTION KEY (UP, DOWN, LEFT, RIGHT, YES, NO)
KEY B
S007, 008, 010
FUNCTION KEY (DEMO, OFF, MEMO)
KEY A
S009
AGC SWITCH
V CONTROL
AC IN
POWER SUPPLY
HEAD
S12V (UNSW'D)
S9V (UNSW'D)
STANDBY 5V
12V (SW'D)
12V UR
5V (SW'D)
POWER ON
SY-50 BOARD (See Page 133)
IC001, IC003 - IC009
+5V
SYSTEM CONTROL
ANALOG
DIGITAL
VIDEO
CONTROL SIG
TXD, CS
SDATA, SCLK, CS
POWER ON
THRMISTA I
IC014 (1/2)
PP. LOAD DETECT
IC013
PP. SET DETECT
FG SHAPER
IC015
PP. TRAY DETECT
RIBBON CODE DETECT
IC016
INTERLOCK DETECT
IC010
PLATEN SERVO
IC012
HEAD MOTOR DRIVE
IC011
PLATEN MOTOR DRIVE
IC014 (2/2)
HEAD TEMPERATUE DETECT
FAN DRIVE
(See Page 133)
PP. LOAD SENSOR
SW-8 BOARD
PP. EJECT SENSOR
SW-5 BOARD
(See Page 133)
CAM POSITION SENSOR
HOME POSITION SENSOR
SW-7 BOARD
(See Page 133)
PP. SET SENSOR
SW-4 BOARD
(See Page 133)
FG SENSOR
SW-6 BOARD
(See Page 133)
(See Page 133)
PP. TRAY SENSOR
PTC-11 BOARD
(See Page 133)
PAPER TRAY LED
PTC-9 BOARD
(See Page 133)
RIBBON CODE SENSOR
PTC-10 BOARD
RIBBON CODE LED
PTC-8 BOARD
(See Page 133)
INTERLOCK (TOP) SENSOR
SW-9 BOARD
(See Page 133)
INTERLOCK (BOTTOM) SENSOR
SW-10 BOARD
(See Page 133)
RIBBON CARTRIGE SENSOR
S-12 BOARD
(See Page 133)
M
M1402 HEAD MOTOR
M
M1401 PLATEN MOTOR
M
M1403 FAN MOTOR

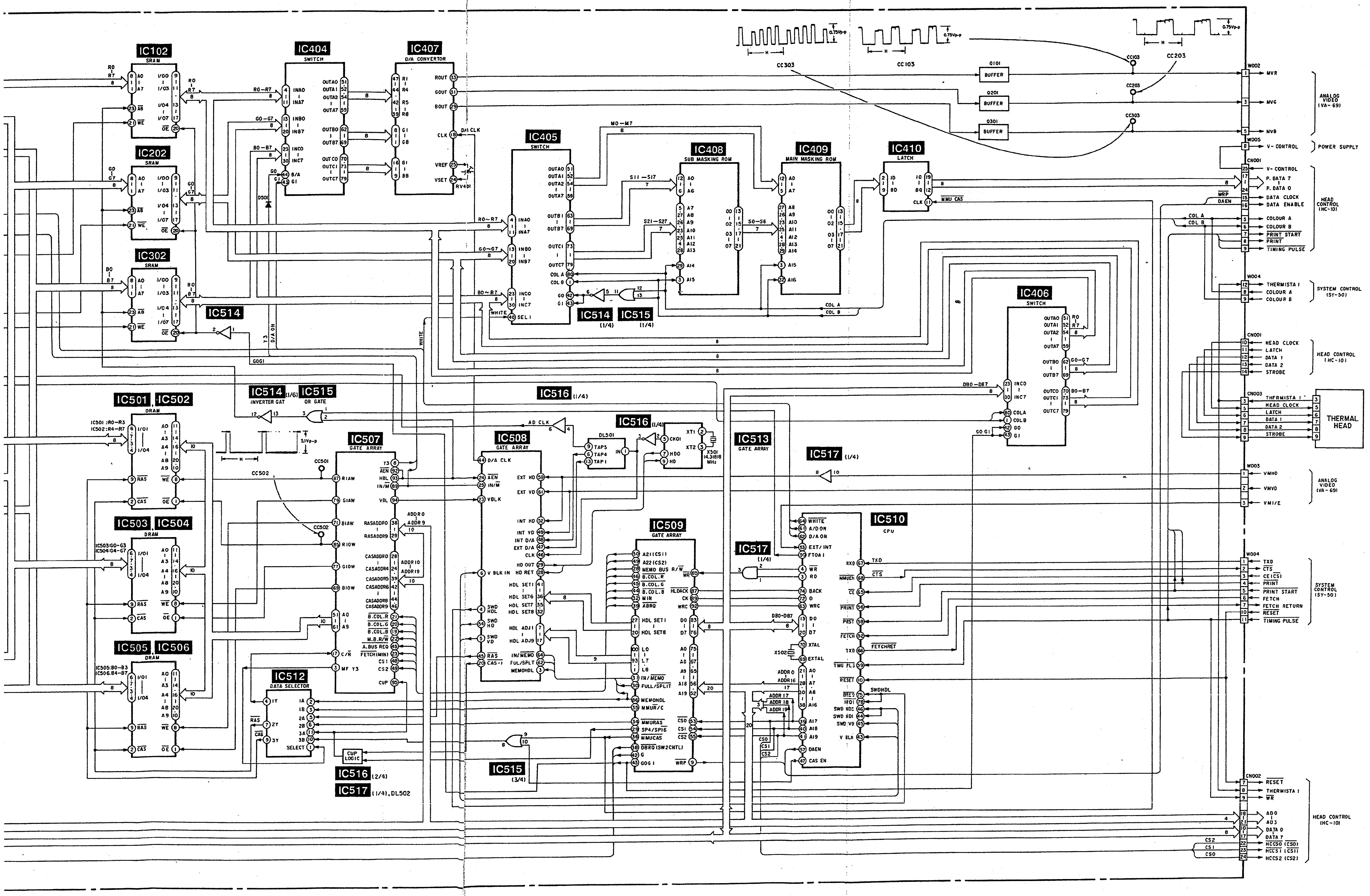
5-3. VIDEO (ANALOG) BLOCK DIAGRAM


VA-69 BOARD
(See Page 75)
(See Page 138)
CN-54 BOARD (1/2)
(See Page 139)
CK-55 BOARD (1/2)
(See Page 139)
PW-97 BOARD (1/2)
CNJ101 Y/C INPUT FRONT
CNJ102 VIDEO INPUT FRONT
CNJ101 (1/2) Y/C INPUT REAR
VIDEO INPUT REAR
S202 FRONT REAR
CN202
CN302
CN101
W101
W301
W303
FY OUT
FC OUT
FV OUT
FSC
FSV
FVSEL
RSV
FR SEL
SV SEL
FY IN
FC IN
FV IN
FL101
FL102
FL103
FL104
FL105
FL106
IC101
IC102
IC103
REAR
FRONT
Q101
Q102
Q103
Q109
BUFFER
SEL Y
SEL C
SEL V
IC604
INT
EXT
INT/EXT
Q650
SEL Y2
IC401
Y AMP
Q401
DELAY DRIVE
RV402 U/V ADJ
DL402
DELAY
Q402
DL401
1H DELAY (U/V SEP)
T401
TP415
TP416
TP111
TP112
IC650
SYNC DET
DET
IN
IC603
THRU
Q652
D603
IC403
RGB DECODER
LUMINANCE PROCESS
DEMOD
MATRIX
BLK
ACC
APC
BURST GATE PULSE
BGP
RV403 COLOR
X401 4.43MHz
CT401
FSC
H IN
H SYNC SEP
HOR. AFC
HOR. APC
V IN
V SYNC SEP
V COUNTER
BLK GEN
X402 500KHz
HD
FBP
CBLK
SYNC
PHASE
RV401 PHASE
PIC
Vcc1
Vcc2
Vcc3
UNSWD 12V
UNSWD 9V
CN401
IC404
AGC ON
AGC OFF
IC405 (1/2)
RV409 AGC LEVEL
Q406
SELG
RV410 DECODER OUTPUT LEVEL
RV408
Q401,402
AGC DET
TP412
TP413
TP414
Q403
Q404
Q405
FL501
FL502
FL503
LPF
Q501
Q502
Q503
TP501
TP503
TP504
IC501
LIN R
LIN G
LIN B
PICTURE CONTROL
AUTO WHITE BALANCE
TIMING CONTROL PROCESS
VREF
R OUT
R IK DRIVE
G OUT
G IK DRIVE
B OUT
B IK DRIVE
Q504,505
Q506,507
Q508,509
RV504
RV506
RV508
TP506
TP507
TP508
Q513
BLNK MUTE
SW
BLK
VP
HB
RV501 G PICTURE LEVEL
RV502 G BRIGHT LEVEL
UNSWD 9V
Vcc
CN402
PDDG (AGC ON)
SELG (COMMON)
FXDG (AGC OFF)
SYSTEM CONTROL (KY-12)
DIGITAL VIDEO (MC-80)
VMR
VMG
VMB
VMRT
VMRB
IC609 (1/3)
H-H-K
BLNK
IC606 (1/2)
IC607
V SYNC SEP
CSYNC
VD
IC613 (1/2)
MMV
RV602 AFH PHASE ADJ
TP663
IC616 (1/2)
IC615
IC617 (1/4)
IC611 (1/2)
DELAY
IC614 (1/3)
AFCH
PRE CLR
RV601 BURST POSITION
H RESET PULSE GENERATOR
IC605
SYNC SEP/AFC
C SYN
SYNC SEP
HALF H KILLER
V SYNC SEP
V/H SELECT PULSE GEN
AFC DET
AFC H
1/910
910fH VCO
MCKO
UNSWD 5V
Q601,651
AMP
TP650
D602
CT603 AFC ERROR
IC610
SYNC GENERATOR
HRI
VRI
CLI
BF
BLK
LALT
CB
CLAMP
HD
IC612 (1/2)
Q602
BLNK MUTE
BLANK
IC608
FREQUENCY DIVIDER 1/2
4FSC
IC601
INTERNAL VIDEO GENERATOR
SYNC
4FO
4FI
CLO
CLI
HCOM
X601 17.73MHz
4FSC I
CT601 FREE RUN FREQ
IC660
VCO
TP662
TP661
D601
CT604 FH ERROR
IC619
IC202
VIDEO AMP
FL201
Q201-204
SYNC-TIP CLAMP
SEPA V
TP113
IC204
DIGITAL COMB FILTER
Y D/A
Y/C SEP
CHROMA D/A
CLOCK
4FSC PLL
Q207
FL203
Q208-210
Y AMP
SEPA Y
RV203 Y/C SEPA Y LEVEL
Q211
FL204
BPF
Q212
SEPA C
RV202 Y/C SEPA C LEVEL
TP114
TP201
Q205,206
FSC AMP
IC203
A/D CONVERTER
VIN
DVDD
AVDD
CLK
IC205
UNSWD 5V
4FSC E

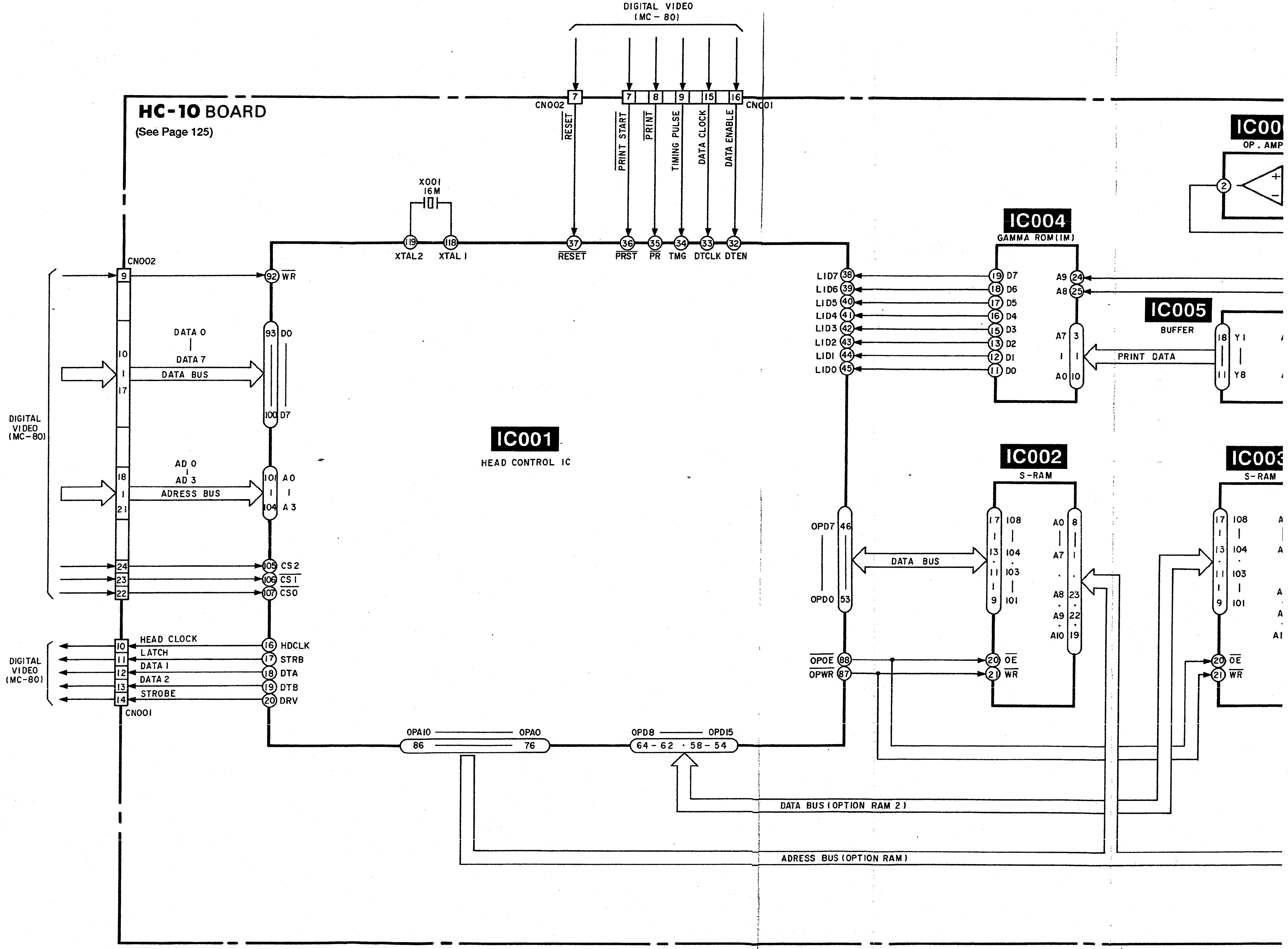

PDDG (AGC ON)
SELG (COMMON)
FXDG (AGC OFF)
SYSTEM CONTROL (KY-12)
CN402
DIGITAL VIDEO (MC-80)
VMR
VMG
VMB
VMRT
VMRB
CN403
MVR
MVG
MVB
CN701
IC501
PICTURE CONTROL
AUTO WHITE BALANCE
TIMING CONTROL PROCESS
LIN R
LIN G
LIN B
VREF
R OUT
R IK DRIVE
G OUT
G IK DRIVE
B OUT
B IK DRIVE
BLNK MUTE
TP501
TP503
TP504
TP506
TP507
TP508
Q504,505
Q506,507
Q508,509
BUFFER
RV503
R PEDESTAL DRIVE
RV505
G PEDESTAL DRIVE
RV507
B PEDESTAL DRIVE
RV504
RV506
RV508
Q513
IC502
Q510,511
IC704
BLANKING
THR R
THR G
THR B
Q701
Q702
Q703
Q704
BLANK
IC701
IC702
IC703
RV701
MV/THR LEVEL R
RV702
MV/THR LEVEL G
RV703
MV/THR LEVEL B
TP702
TP703
TP704
TP708
Q705
Q710
Q715
Q716
THRU
IC705 (1/2)
SUPER IMPOSE
R IN TV
G IN TV
B IN TV
R IN PC
G IN PC
B IN PC
R OUT
G OUT
B OUT
YM
YS
BF
SWD 5V
CLAMP
TP706
TP707
ΔY MATRIX
Q801
ΔY BUFFER
INVERT AMP
Q802
−ΔY BUFFER
RV803
BLACK/WHITE BALANCE
Q805,806
ΔR−Y MATRIX AMP
RV804
R-Y LEVEL
RV801
BLACK/WHITE BALANCE
Q803,804
ΔB−Y MATRIX AMP
RV802
B-Y LEVEL
TP801
TP802
Q727
LPF
Q726
RV706
S/V RATIO
RV707
S/V RATIO
Q729,730
SYNC ADD
DL701
DELAY
Q731
TP715
IC801
CHROMA ENCODER
CLP
BURST MIX
MOD
RV806
CARRIEAR BALANCE
RV805
CARRIEAR BALANCE
RV809
BURST LEVEL
Q807
FL801
4.43MHz BPF
IC705 (1/2)
CHROMA AMP
Q808
RV807
CHROMA LEVEL
TP713
IC802
FREQUENCY DIVIDER 1/4
FSC90°
FSC0°
IC803
TP804
TP803
PHASE SHIFT
CT801
4.43MHz
C SYNC
4FSC
LALT
IC104
IC105
SEL Y
SEL C
SEL V
Q105
Q106
IC106
Y OUT AMP
IC107
CHROMA OUT AMP
IC108
IC109
TP116
TP118
TP119
TP121
TP122
TP124
RV101
Y OUT LEVEL
RV102
C OUT LEVEL
RV103
Y/C MIX RATIO
RV104
Y/C MIX RATIO
Q107,108
Y/C MIX
RV105
V OUT LEVEL
D105
Q104
5V SEL
EE/THRU
FL107
FL108
FL109
CNJ101 (1/2)
Y/C OUT
VIDEO OUT
IC606 (1/2)
IC617 (1/4)
IC611 (1/2)
DELAY
IC616 (1/2)
PRE CLR
RV601
BURST POSITION
IC611 (1/2)
MMV
IC614 (1/3)
H RESET PULSE GENERATOR
IC617 (1/4)
BLANK
IC617 (1/4)
CB
HD
VD
DET
IC618
CHARACTER GENERATOR
SWD5V
Q717
UPPER LIMITER
Q718
UPPER LIMITER
Q719
UPPER LIMITER
Q720
D701,702
LOWER CLAMP
CHY
YS
CS
S DATA
SCLK
CN601
VD
SYNC DET
MONITOR SELECT
EE/THRU
CS
S DATA
S CLK
YM
SYSTEM CONTROL (SY-50)
TP709
TP711
CN602
VMHD
VMVD
VMIE
DIGITAL VIDEO (MC-80)

-4. VIDEO (DIGITAL) BLOCK DIAGRAM


MC-80 BOARD (DIGITAL)
(See Page 99)
ANALOG VIDEO (VA-69)
W001
VMR
VMG
VMB
VMRB
CC101
CC201
CC301
CC303
CC103
CC501
CC502
IC101 A/D CONVERTOR
IC201 A/D CONVERTOR
IC301 A/D CONVERTOR
IC401 SWITCH
IC402 SWITCH-2
IC403 SWITCH
IC411 DATA SELECTOR
IC515 (1/4)
IC514 (1/6)
IC102 SRAM
IC202 SRAM
IC302 SRAM
IC514
IC404 SWITCH
IC407 D/A CONVERTOR
IC405 SWITCH
IC408 SUB MASKING ROM
IC409 MAIN MASKING ROM
IC410 LATCH
IC514 (1/4)
IC515 (1/4)
Q101 BUFFER
Q201 BUFFER
Q301 BUFFER
IC501 IC502 DRAM
IC503 IC504 DRAM
IC505 IC506 DRAM
IC514 (1/6) INVERTER GAT
IC515 OR GATE
IC507 GATE ARRAY
IC508 GATE ARRAY
IC512 DATA SELECTOR
CUP LOGIC
IC516 (2/4)
IC517 (1/4), DL502
IC516 (1/4)
DL501
X501 14.31818 MHz
IC513 GATE ARRAY
IC517 (1/4)
IC509 GATE ARRAY
IC515 (3/4)
IC510 CPU
X502
RV401
D501

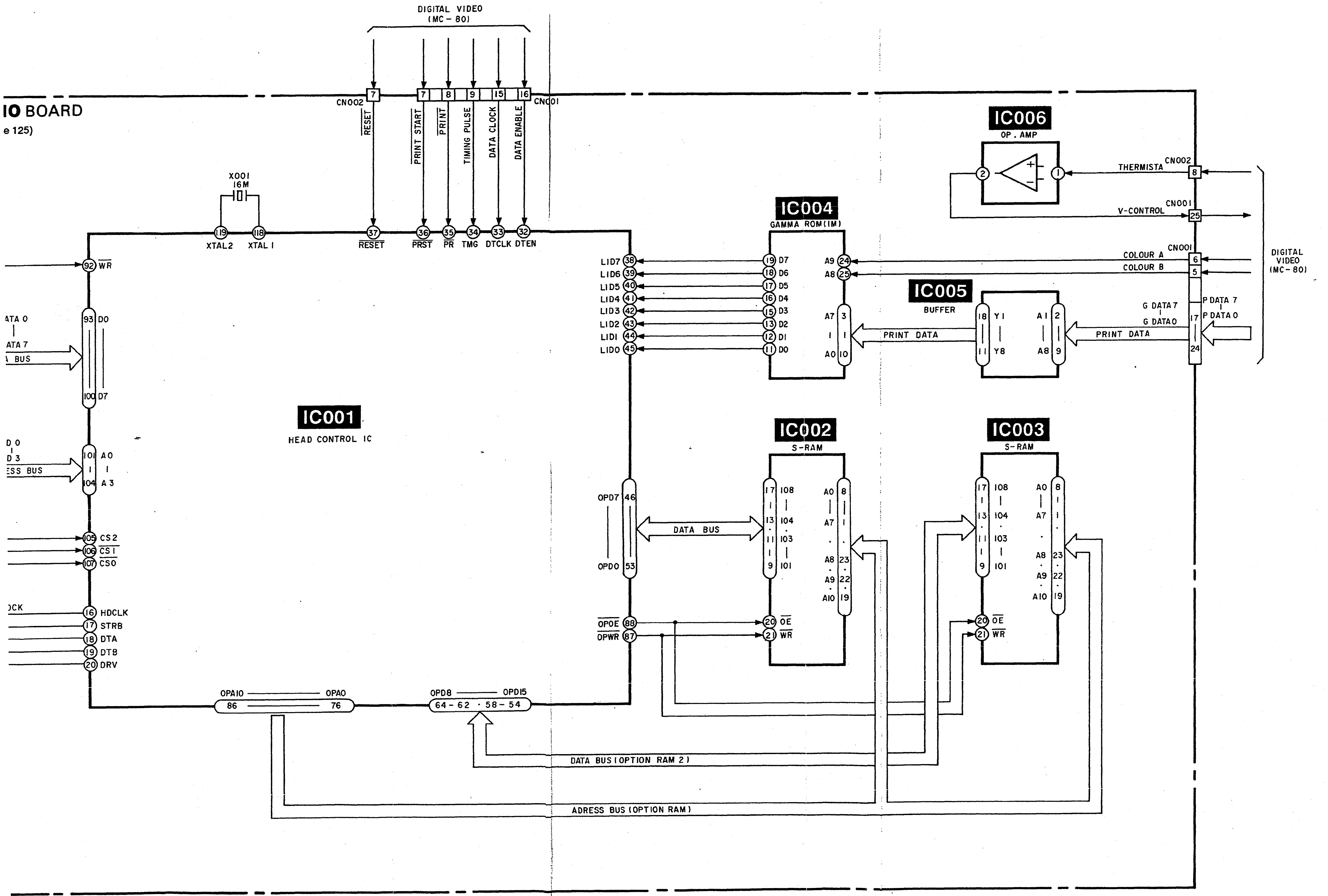

IC102 SRAM
IC202 SRAM
IC302 SRAM
IC404 SWITCH
IC407 D/A CONVERTOR
IC405 SWITCH
IC408 SUB MASKING ROM
IC409 MAIN MASKING ROM
IC410 LATCH
IC406 SWITCH
IC514
IC514 (1/6) INVERTER GAT
IC515 OR GATE
IC514 (1/4)
IC515 (1/4)
IC516 (1/4)
IC501 IC502 DRAM
IC503 IC504 DRAM
IC505 IC506 DRAM
IC507 GATE ARRAY
IC508 GATE ARRAY
IC509 GATE ARRAY
IC510 CPU
IC512 DATA SELECTOR
IC513 GATE ARRAY
IC516 (1/4)
IC517 (1/4)
IC517 (1/4)
IC515 (3/4)
IC516 (2/4)
IC517 (1/4), DL502
DL501
X501 14.31818 MHz
X502
CUP LOGIC
BUFFER
BUFFER
BUFFER
Q101
Q201
Q301
CC303
CC103
CC103
CC203
CC303
CC501
CC502
0.75Vp-p
5.1Vp-p
RV401
D501
W002
MVR
MVG
MVB
ANALOG VIDEO (VA-69)
W005
V- CONTROL
POWER SUPPLY
CN001
V- CONTROL
P. DATA 7
P. DATA 0
DATA CLOCK
DATA ENABLE
HEAD CONTROL (HC-10)
COLOUR A
COLOUR B
PRINT START
PRINT
TIMING PULSE
W004
THERMISTA 1
COLOUR A
COLOUR B
SYSTEM CONTROL (SY-50)
CN001
HEAD CLOCK
LATCH
DATA 1
DATA 2
STROBE
HEAD CONTROL (HC-10)
CN003
THERMISTA 1
HEAD CLOCK
LATCH
DATA 1
DATA 2
STROBE
THERMAL HEAD
W003
VMHD
VMVD
VMI/E
ANALOG VIDEO (VA-69)
W004
TXD
CTS
CE(CS)
PRINT
PRINT START
FETCH
FETCH RETURN
RESET
TIMING PULSE
SYSTEM CONTROL (SY-50)
CN002
RESET
THERMISTA 1
WR
AD0
AD3
DATA 0
DATA 7
HCCS0 (CS0)
HCCS1 (CS1)
HCCS2 (CS2)
HEAD CONTROL (HC-10)

5-5. HEAD CONTROL BLOCK DIAGRAM

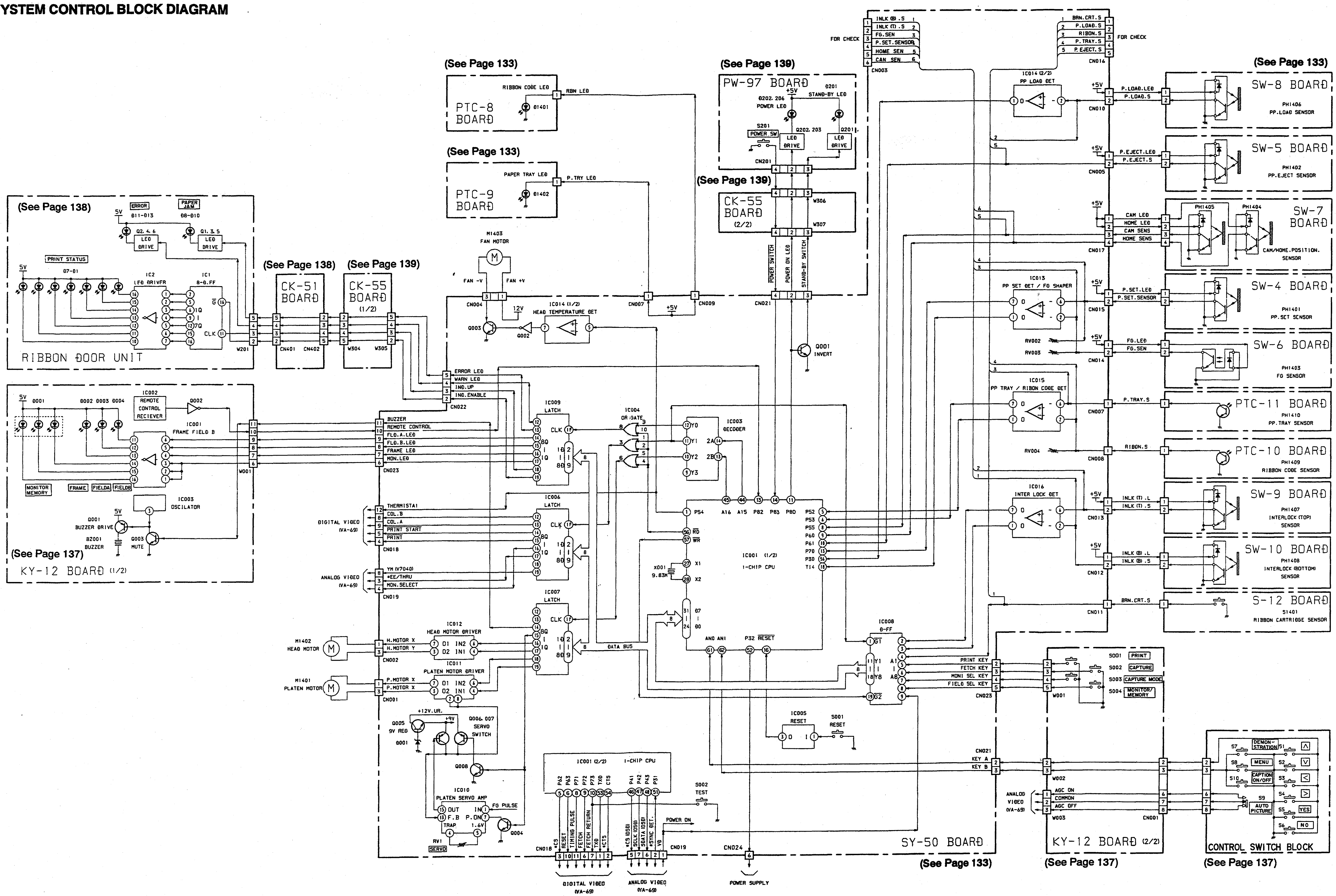

DIGITAL VIDEO
(MC – 80)
HC-10 BOARD
(See Page 125)
CN002
CN001
RESET
PRINT START
PRINT
TIMING PULSE
DATA CLOCK
DATA ENABLE
X001
16M
XTAL2
XTAL1
RESET
PRST
PR
TMG
DTCLK
DTEN
IC001
HEAD CONTROL IC
WR
DATA 0
DATA 7
DATA BUS
D0
D7
AD 0
AD 3
ADRESS BUS
A0
A3
CS2
CS1
CS0
DIGITAL VIDEO (MC–80)
HEAD CLOCK
LATCH
DATA 1
DATA 2
STROBE
HDCLK
STRB
DTA
DTB
DRV
LID7
LID6
LID5
LID4
LID3
LID2
LID1
LID0
IC004
GAMMA ROM(1M)
D7
D6
D5
D4
D3
D2
D1
D0
A9
A8
A7
A0
IC005
BUFFER
PRINT DATA
Y1
Y8
IC00
OP. AMP
OPD7
OPD0
DATA BUS
IC002
S-RAM
IO8
IO4
IO3
IO1
A0
A7
A8
A9
A10
OPOE
OPWR
OE
WR
IC003
S-RAM
OPA10
OPA0
OPD8
OPD15
64 – 62 · 58 – 54
DATA BUS (OPTION RAM 2)
ADRESS BUS (OPTION RAM)

IO BOARD

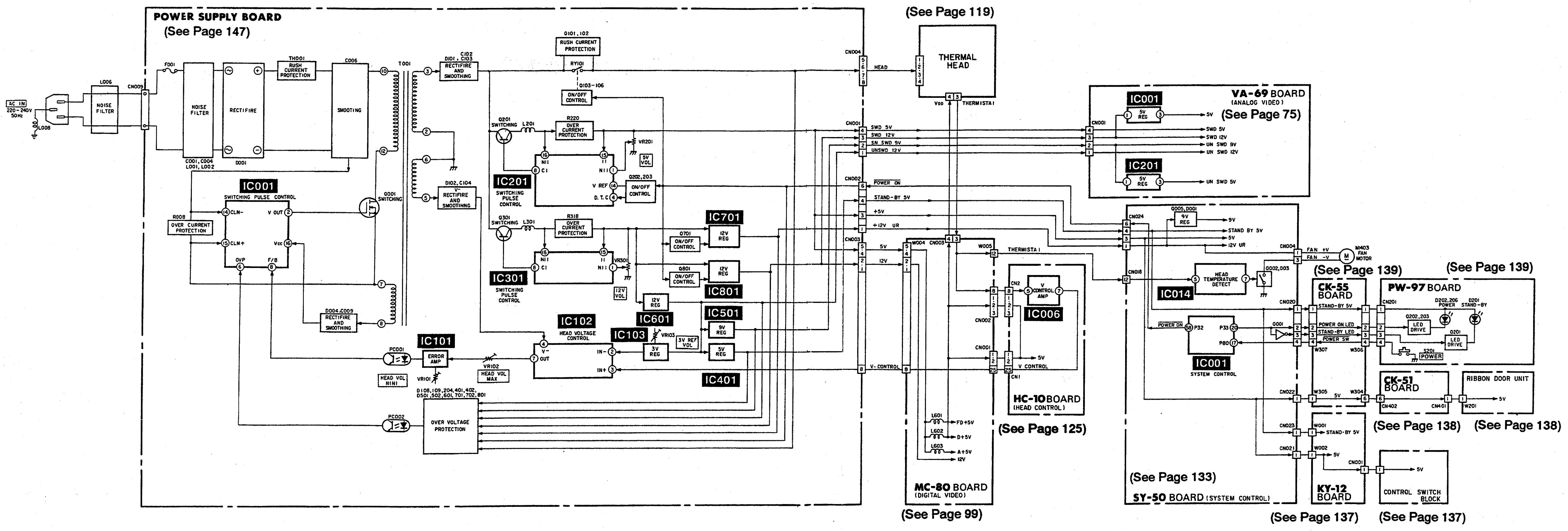
e 125)


DIGITAL VIDEO (MC-80)
CN002
CN001
RESET
PRINT START
PRINT
TIMING PULSE
DATA CLOCK
DATA ENABLE
X001 16M
XTAL2
XTAL 1
RESET
PRST
PR
TMG
DTCLK
DTEN
WR
ATA 0
ATA 7
BUS
D0
D7
D 0
D 3
ESS BUS
A0
A 3
CS2
CS1
CS0
CK
HDCLK
STRB
DTA
DTB
DRV
IC001
HEAD CONTROL IC
LID7
LID6
LID5
LID4
LID3
LID2
LID1
LID0
OPD7
OPD0
DATA BUS
OPOE
OPWR
OPA10
OPA0
OPD8
OPD15
64 - 62 · 58 - 54
DATA BUS (OPTION RAM 2)
ADRESS BUS (OPTION RAM)
IC004
GAMMA ROM (1M)
PRINT DATA
IC005
BUFFER
Y1
Y8
A1
A8
IC006
OP. AMP
THERMISTA
V-CONTROL
COLOUR A
COLOUR B
G DATA 7
G DATA 0
P DATA 7
P DATA 0
DIGITAL VIDEO (MC-80)
IC002
S-RAM
IC003
S-RAM
OE
WR
A0
A7
A8
A9
A10

5-6. SYSTEM CONTROL BLOCK DIAGRAM


(See Page 133)
PTC-8 BOARD
RIBBON CODE LED
D1401
RBN LED
(See Page 133)
PTC-9 BOARD
PAPER TRAY LED
D1402
P.TRY LED
(See Page 139)
PW-97 BOARD
D201
STAND-BY LED
D202, 206
POWER LED
S201
POWER SW
Q202, 203
LED DRIVE
Q201
LED DRIVE
CN201
(See Page 139)
CK-55 BOARD (2/2)
W306
W307
POWER SWITCH
POWER ON LED
STAND-BY SWITCH
CN021
Q001
INVERT
FOR CHECK
INLK (B).S
INLK (T).S
FG.SEN
P.SET.SENSOR
HOME SEN
CAN SEN
CN003
BRN.CRT.S
P.LOAD.S
RIBON.S
P.TRAY.S
P.EJECT.S
CN016
(See Page 138)
ERROR
PAPER JAM
D11-D13
D8-D10
Q2, 4, 6
LED DRIVE
Q1, 3, 5
LED DRIVE
PRINT STATUS
D7-D1
IC2
LED DRIVER
IC1
8-D.FF
CLK
W201
RIBBON DOOR UNIT
(See Page 138)
CK-51 BOARD
CN401
CN402
(See Page 139)
CK-55 BOARD (1/2)
W304
W305
M1403
FAN MOTOR
FAN -V
FAN +V
CN004
12V
Q003
Q002
IC014 (1/2)
HEAD TEMPERATURE DET
CN007
+5V
CN009
ERROR LED
WARN LED
IND.UP
IND.ENABLE
CN022
IC002
REMOTE CONTROL RECIEVER
D001
D002 D003 D004
Q002
IC001
FRAME FIELD B
MONITOR MEMORY
FRAME
FIELDA
FIELDB
W001
IC003
OSCILATOR
Q001
BUZZER DRIVE
BZ001
BUZZER
Q003
MUTE
(See Page 137)
KY-12 BOARD (1/2)
BUZZER
REMOTE CONTROL
FLD.A.LED
FLD.B.LED
FRAME LED
MON.LED
CN023
IC009
LATCH
IC004
OR GATE
IC003
DECODER
DIGITAL VIDEO (VA-69)
THERMISTA1
COL.B
COL.A
PRINT START
PRINT
CN018
IC006
LATCH
ANALOG VIDEO (VA-69)
YM (V7040)
*EE/THRU
MON.SELECT
CN019
IC007
LATCH
IC001 (1/2)
1-CHIP CPU
X001
9.83M
DATA BUS
M1402
HEAD MOTOR
H.MOTOR X
H.MOTOR Y
CN002
IC012
HEAD MOTOR DRIVER
M1401
PLATEN MOTOR
P.MOTOR X
P.MOTOR X
CN001
IC011
PLATEN MOTOR DRIVER
+12V.UR.
Q005
9V REG
D001
Q006, 007
SERVO SWITCH
Q008
IC010
PLATEN SERVO AMP
FG PULSE
RV1
SERVO
Q004
IC001 (2/2)
1-CHIP CPU
S002
TEST
POWER ON
CN018
CN019
CN024
DIGITAL VIDEO (VA-69)
ANALOG VIDEO (VA-69)
POWER SUPPLY
RESET
TIMING PULSE
FETCH
FETCH RETURN
IC005
RESET
S001
RESET
IC008
8-FF
PRINT KEY
FETCH KEY
MONI SEL KEY
FIELD SEL KEY
CN023
CN021
KEY A
KEY B
SY-50 BOARD
(See Page 133)
IC014 (2/2)
PP LOAD DET
CN010
+5V
P.LOAD.LED
P.LOAD.S
(See Page 133)
SW-8 BOARD
PH1406
PP.LOAD SENSOR
P.EJECT.LED
P.EJECT.S
CN005
SW-5 BOARD
PH1402
PP.EJECT SENSOR
CAM LED
HOME LED
CAM SENS
HOME SENS
CN017
PH1405
PH1404
SW-7 BOARD
CAM/HOME.POSITION. SENSOR
IC013
PP SET DET / FG SHAPER
P.SET.LED
P.SET.SENSOR
CN015
SW-4 BOARD
PH1401
PP.SET SENSOR
RV002
RV003
FG.LED
FG.SEN
CN014
SW-6 BOARD
PH1403
FG SENSOR
IC015
PP TRAY / RIBBON CODE DET
P.TRAY.S
CN007
PTC-11 BOARD
PH1410
PP.TRAY SENSOR
RV004
RIBBON.S
CN008
PTC-10 BOARD
PH1409
RIBBON CODE SENSOR
IC016
INTER LOCK DET
INLK (T).L
INLK (T).S
CN013
SW-9 BOARD
PH1407
INTERLOCK (TOP) SENSOR
INLK (B).L
INLK (B).S
CN012
SW-10 BOARD
PH1408
INTERLOCK (BOTTOM) SENSOR
BRN.CRT.S
CN011
S-12 BOARD
S1401
RIBBON CARTRIDGE SENSOR
S001 PRINT
S002 CAPTURE
S003 CAPTURE MODE
S004 MONITOR/MEMORY
W001
W002
W003
ANALOG VIDEO (VA-69)
AGC ON
COMMON
AGC OFF
CN001
KY-12 BOARD (2/2)
(See Page 137)
S7 DEMON-STRATION
S1
S8 MENU
S2
S10 CAPTION ON/OFF
S3
S4
S9 AUTO PICTURE
S5 YES
S6 NO
CONTROL SWITCH BLOCK
(See Page 137)

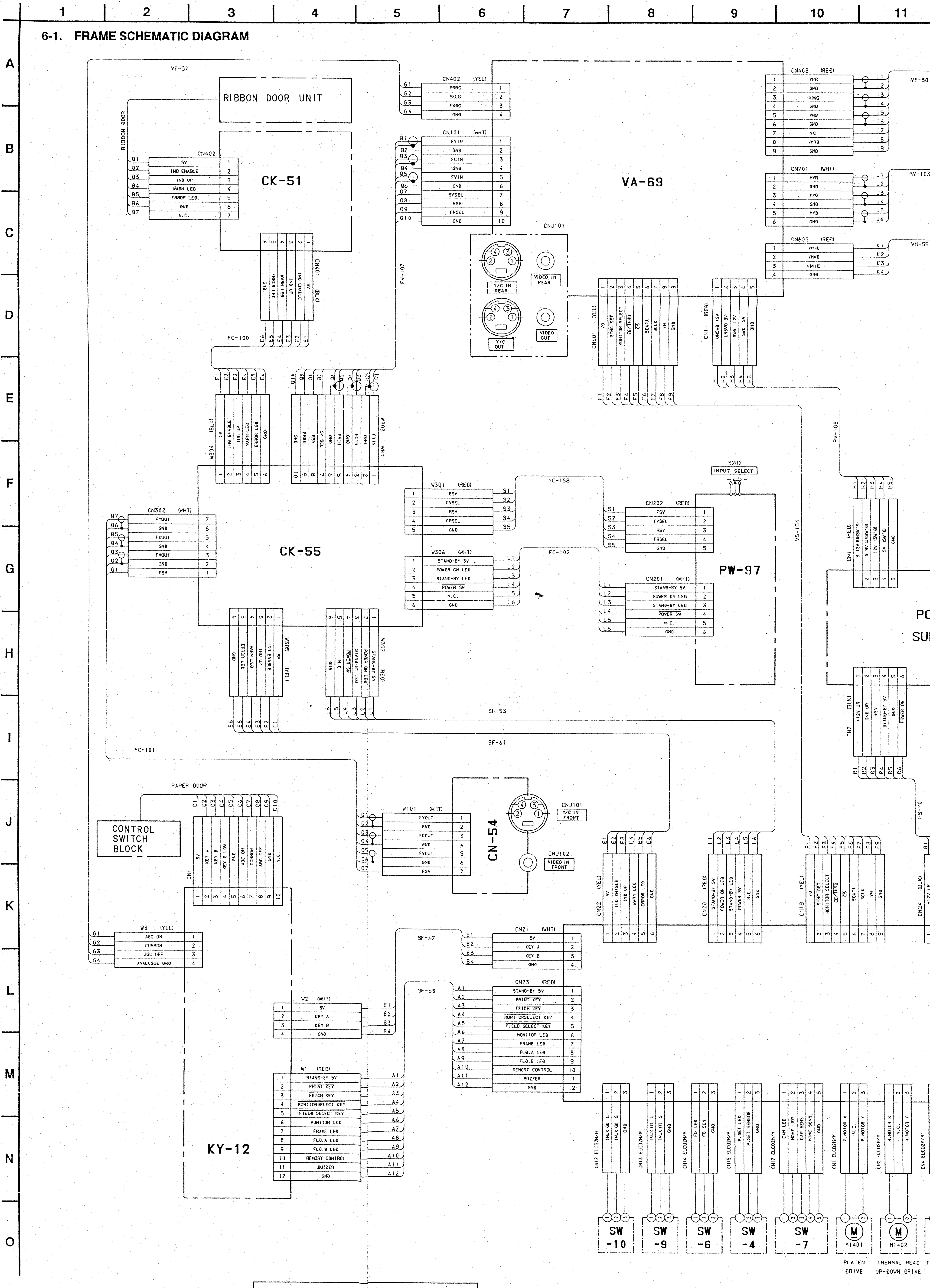
5-7. POWER BLOCK DIAGRAM


POWER SUPPLY BOARD
(See Page 147)
AC IN
220-240V 50Hz
L008
L006
NOISE FILTER
CN009
F001
NOISE FILTER
C001, C004
L001, L002
RECTIFIRE
D001
TH001
RUSH CURRENT PROTECTION
C006
SMOOTING
T001
C102
D101, C103
RECTIFIRE AND SMOOTHING
D102, C104
V-
RECTIFIRE AND SMOOTHING
IC001
SWITCHING PULSE CONTROL
CLM-
CLM+
V OUT
Vcc
OVP
F/B
Q001
SWITCHING
R008
OVER CURRENT PROTECTION
D004, C009
RECTIFIRE AND SMOOTHING
IC101
ERROR AMP
PC001
PC002
HEAD VOL MINI
VR101
VR102
HEAD VOL MAX
D108, 109, 204, 401, 402,
D501, 502, 601, 701, 702, 801
OVER VOLTAGE PROTECTION
Q101, 102
RUSH CURRENT PROTECTION
RY101
Q103-106
ON/OFF CONTROL
Q201
SWITCHING
L201
R220
OVER CURRENT PROTECTION
VR201
5V VOL
IC201
SWITCHING PULSE CONTROL
NI
CI
II
NII
V REF
D.T.C
Q202, 203
ON/OFF CONTROL
Q301
SWITCHING
L301
R318
OVER CURRENT PROTECTION
VR301
12V VOL
IC301
SWITCHING PULSE CONTROL
IC701
Q701
ON/OFF CONTROL
12V REG
Q801
ON/OFF CONTROL
12V REG
IC801
12V REG
IC601
IC501
9V REG
IC102
HEAD VOLTAGE CONTROL
V-
OUT
IN-
IN+
IC103
VR103
3V REG
3V REF VOL
5V REG
IC401
CN004
HEAD
CN001
SWD 5V
SWD 12V
SN SWD 9V
UNSWD 12V
CN002
POWER ON
STAND-BY 5V
+5V
+12V UR
CN003
5V
12V
V-CONTROL
(See Page 119)
THERMAL HEAD
VDD
THERMISTA I
W004
CN003
W005
THERMISTA I
CN002
CN001
L601
FD+5V
L602
D+5V
L603
A+5V
12V
MC-80 BOARD
(DIGITAL VIDEO)
(See Page 99)
CN2
V CONTROL AMP
IC006
5V
V CONTROL
CN1
HC-10 BOARD
(HEAD CONTROL)
(See Page 125)
IC001
5V REG
5V
VA-69 BOARD
(ANALOG VIDEO)
(See Page 75)
CN001
SWD 5V
SWD 12V
UN SWD 9V
UN SWD 12V
IC201
5V REG
UN SWD 5V
CN024
Q005, D001
9V REG
9V
STAND BY 5V
5V
12V UR
CN004
FAN +V
FAN -V
M403
FAN MOTOR
CN018
HEAD TEMPERATURE DETECT
IC014
Q002, 003
POWER ON
P32
P33
P80
IC001
SYSTEM CONTROL
Q001
CN020
CN022
CN023
CN021
(See Page 133)
SY-50 BOARD (SYSTEM CONTROL)
(See Page 139)
CK-55 BOARD
STAND-BY 5V
POWER ON LED
STAND-BY LED
POWER SW
W307
W306
W305
5V
W304
(See Page 139)
PW-97 BOARD
CN201
D202, 206
POWER
D201
STAND-BY
Q202, 203
LED DRIVE
Q201
LED DRIVE
S201
POWER
CK-51 BOARD
CN402
CN401
RIBBON DOOR UNIT
W201
5V
(See Page 138)
(See Page 138)
W001
STAND-BY 5V
W002
5V
CN001
KY-12 BOARD
CONTROL SWITCH BLOCK
5V
(See Page 137)
(See Page 137)

SECTION 6

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

6-1. FRAME SCHEMATIC DIAGRAM

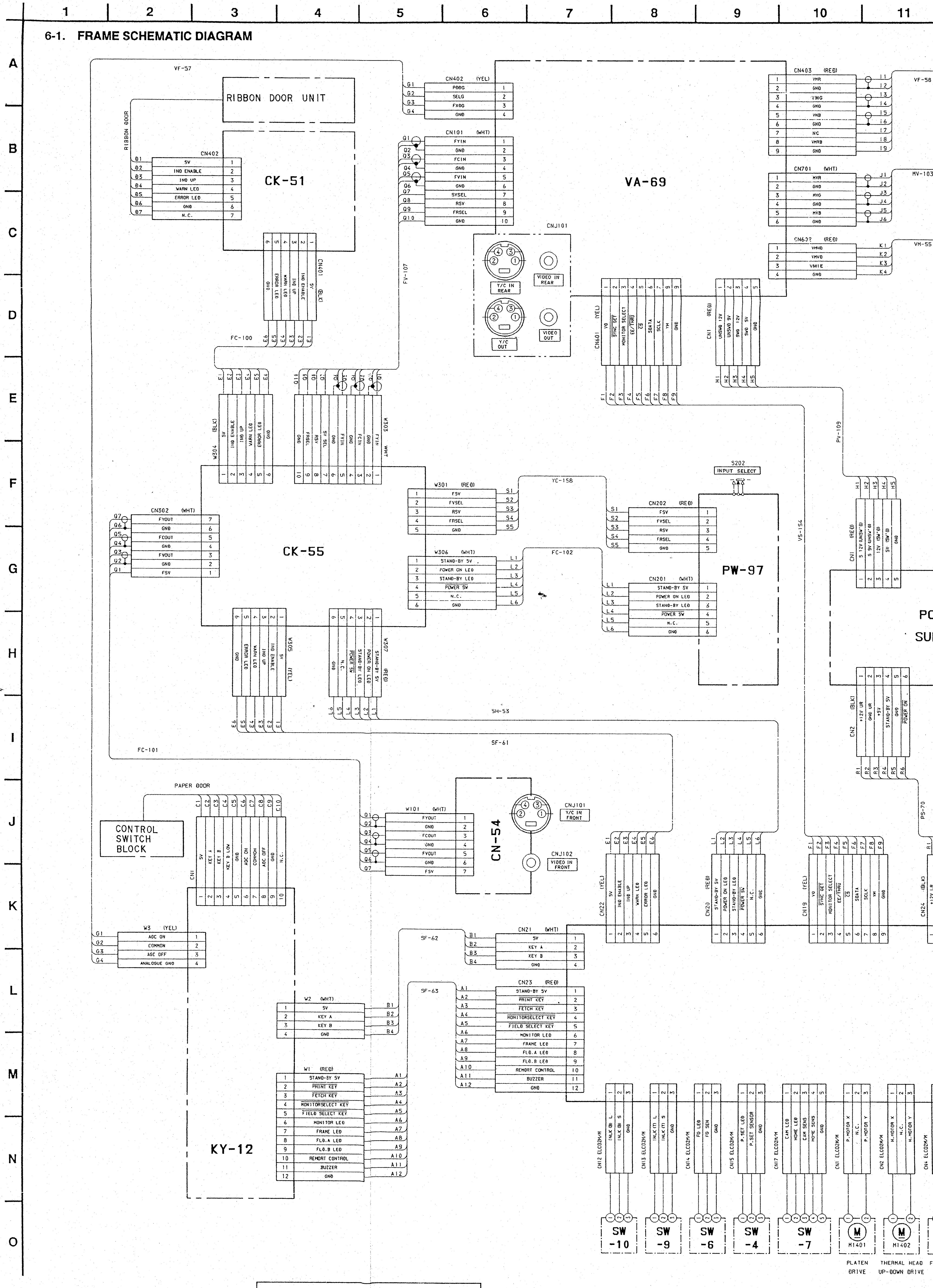


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
VF-57
RIBBON DOOR UNIT
RIBBON DOOR
CN402
CK-51
CN401 (BLK)
FC-100
CN402 (YEL)
CN101 (WHT)
FV-107
VA-69
CNJ101
Y/C IN REAR
VIDEO IN REAR
Y/C OUT
VIDEO OUT
CN601 (YEL)
CN1 (RED)
CN403 (RED)
CN701 (WHT)
CN632 (RED)
VF-58
MV-103
VH-55
W304 (BLK)
W303 WHT
CN302 (WHT)
CK-55
W301 (RED)
W306 (WHT)
W305 (YEL)
W307 (RED)
YC-158
FC-102
S202
INPUT SELECT
CN202 (RED)
CN201 (WHT)
PW-97
PV-109
VS-154
SH-53
SF-61
FC-101
PAPER DOOR
CONTROL SWITCH BLOCK
CN1
W101 (WHT)
CN-54
CNJ101
Y/C IN FRONT
CNJ102
VIDEO IN FRONT
CN22 (YEL)
CN20 (RED)
CN19 (YEL)
CN24 (BLK)
CN2 (BLK)
PS-70
W3 (YEL)
SF-62
CN21 (WHT)
SF-63
CN23 (RED)
W2 (WHT)
W1 (RED)
KY-12
CN12 ELC02M/M
CN13 ELC02M/M
CN14 ELC02M/M
CN15 ELC02M/M
CN17 ELC02M/M
CN1 ELC02M/M
CN2 ELC02M/M
CN4 ELC02M/M
SW -10
SW -9
SW -6
SW -4
SW -7
M1401
M1402
PLATEN DRIVE
THERMAL HEAD UP-DOWN DRIVE

SECTION 6

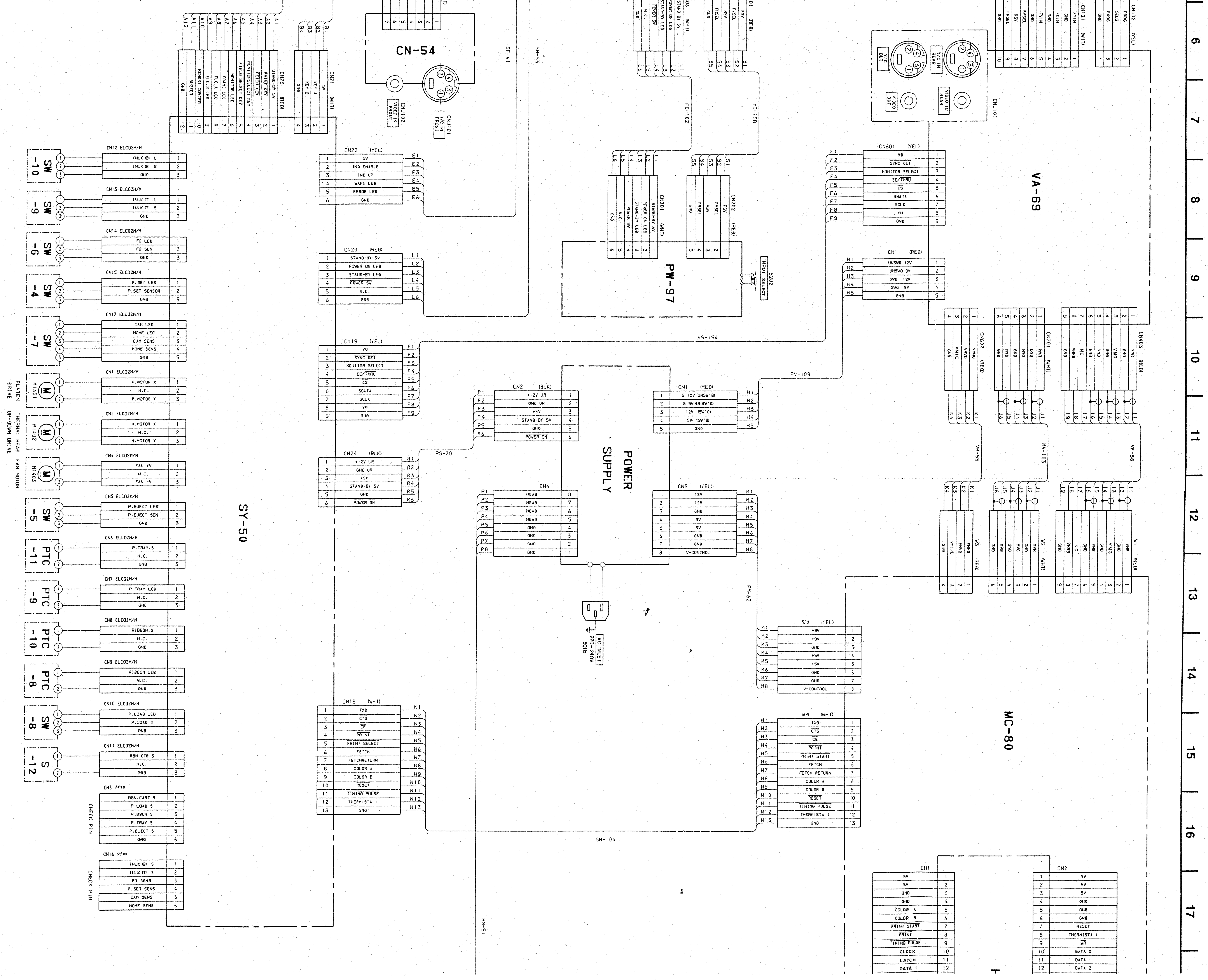
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

6-1. FRAME SCHEMATIC DIAGRAM



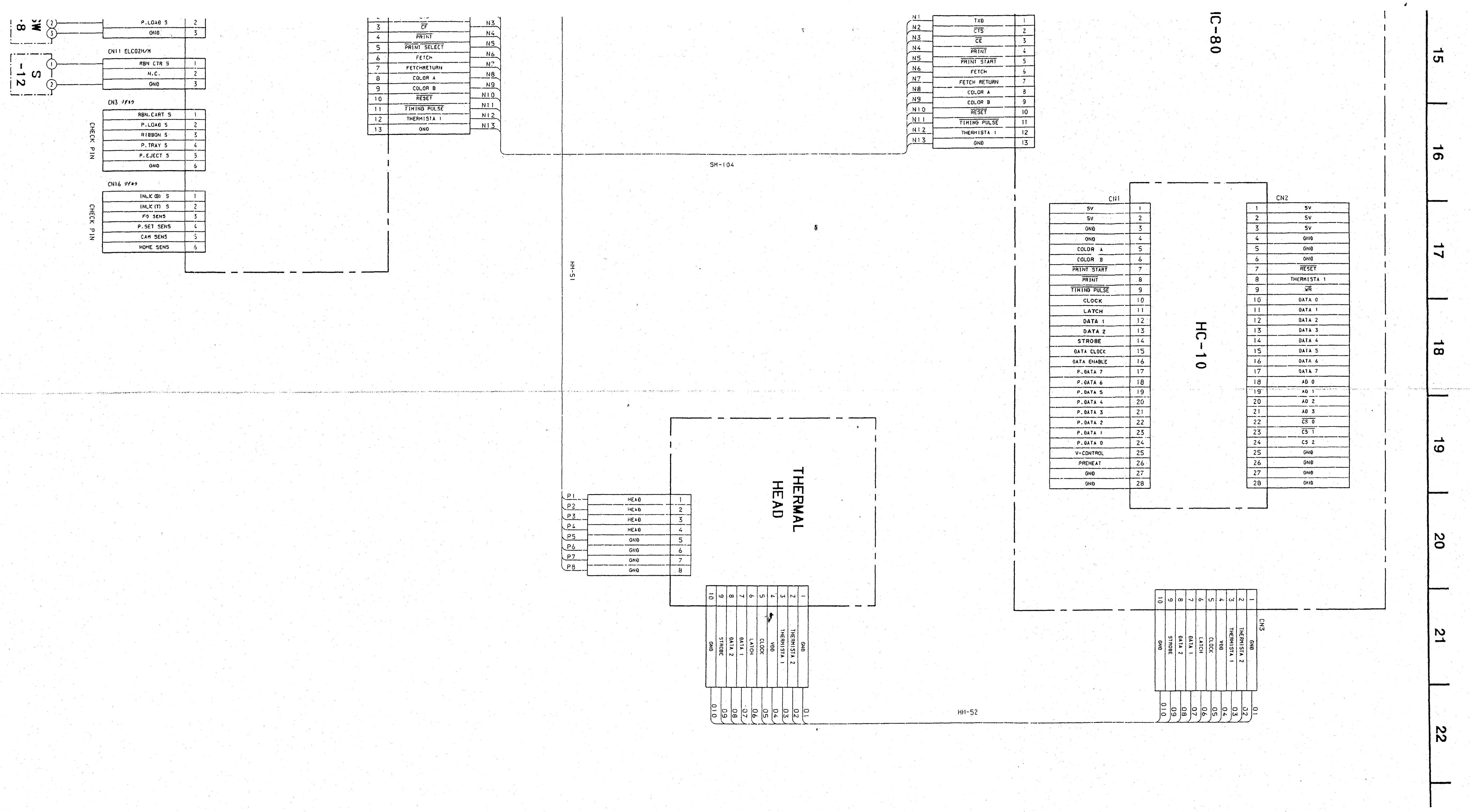
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
RIBBON DOOR UNIT
RIBBON DOOR
VF-57
CN402
CK-51
CN401 (BLK)
FC-100
FV-107
CN402 (YEL)
CN101 (WHT)
CNJ101
Y/C IN REAR
VIDEO IN REAR
Y/C OUT
VIDEO OUT
VA-69
CN403 (RED)
CN701 (WHT)
CN632 (RED)
VF-58
MV-103
VH-55
CN601 (YEL)
CN1 (RED)
W304 (BLK)
W303 WHT
PV-109
CN302 (WHT)
CK-55
W301 (RED)
W306 (WHT)
YC-158
FC-102
S202
INPUT SELECT
CN202 (RED)
CN201 (WHT)
PW-97
VS-154
W305 (YEL)
W307 (RED)
SH-53
SF-61
FC-101
PAPER DOOR
CONTROL SWITCH BLOCK
CN1
W101 (WHT)
CN-54
CNJ101
Y/C IN FRONT
CNJ102
VIDEO IN FRONT
CN22 (YEL)
CN20 (RED)
CN19 (YEL)
CN2 (BLK)
CN24 (BLK)
PS-70
W3 (YEL)
SF-62
CN21 (WHT)
SF-63
CN23 (RED)
W2 (WHT)
W1 (RED)
KY-12
CN12 ELC02M/M
CN13 ELC02M/M
CN14 ELC02M/M
CN15 ELC02M/M
CN17 ELC02M/M
CN1 ELC02M/M
CN2 ELC02M/M
CN4 ELC02M/M
SW -10
SW -9
SW -6
SW -4
SW -7
M1401
M1402
PLATEN DRIVE
THERMAL HEAD UP-DOWN DRIVE
PC
SU

FRAME **FRAME**


SY-50
VA-69
MC-80
PW-97
POWER SUPPLY
CN-54
CN21
CN22 (YEL)
CN23 (RED)
CN20 (RED)
CN19 (YEL)
CN24 (BLK)
CN18 (WHT)
CN2 (BLK)
CN1 (RED)
CN4
CN3 (YEL)
CN601 (YEL)
CN1 (RED)
CN201 (WHT)
CN202 (RED)
CN101 (WHT)
CN402 (YEL)
CN403 (RED)
CN701 (WHT)
CN632 (RED)
W1 (RED)
W2 (WHT)
W3 (RED)
W4 (WHT)
W5 (YEL)
CNJ101
CNJ102
S202 INPUT SELECT
AC INLET 220-240V 50Hz
SW -10
SW -9
SW -6
SW -4
SW -7
SW -5
SW -8
PTC -11
PTC -9
PTC -10
PTC -8
S -12
M1401 PLATEN DRIVE
M1402 THERMAL HEAD UP-DOWN DRIVE
M1403 FAN MOTOR
CHECK PIN
VS-154
PV-109
PS-70
PM-62
SM-104
HH-51
FC-102
YC-158
SF-61
SH-53
VH-55
MV-103
VF-58
6
7
8
9
10
11
12
13
14
15
16
17
ME
FRA

FRAME

FRAME



P.LOAD S	2
GND	3

CN11 ELC02H/H

RBN CTR S	1
N.C.	2
GND	3

CN3 ﾀｲｷｸ

RBN.CART S	1
P.LOAD S	2
RIBBON S	3
P.TRAY S	4
P.EJECT S	5
GND	6

CN16 ﾀｲｷｸ

INLK (B) S	1
INLK (T) S	2
FO SENS	3
P.SET SENS	4
CAM SENS	5
HOME SENS	6

3	$\overline{\text{CF}}$	N3
4	$\overline{\text{PRINT}}$	N4
5	$\overline{\text{PRINT SELECT}}$	N5
6	FETCH	N6
7	FETCHRETURN	N7
8	COLOR A	N8
9	COLOR B	N9
10	$\overline{\text{RESET}}$	N10
11	$\overline{\text{TIMING PULSE}}$	N11
12	THERMISTA 1	N12
13	GND	N13

N1	TXD	1
N2	$\overline{\text{CTS}}$	2
N3	$\overline{\text{CE}}$	3
N4	$\overline{\text{PRINT}}$	4
N5	$\overline{\text{PRINT START}}$	5
N6	FETCH	6
N7	FETCH RETURN	7
N8	COLOR A	8
N9	COLOR B	9
N10	$\overline{\text{RESET}}$	10
N11	$\overline{\text{TIMING PULSE}}$	11
N12	THERMISTA 1	12
N13	GND	13

CN1

5V	1
5V	2
GND	3
GND	4
COLOR A	5
COLOR B	6
$\overline{\text{PRINT START}}$	7
$\overline{\text{PRINT}}$	8
$\overline{\text{TIMING PULSE}}$	9
CLOCK	10
LATCH	11
DATA 1	12
DATA 2	13
STROBE	14
DATA CLOCK	15
DATA ENABLE	16
P.DATA 7	17
P.DATA 6	18
P.DATA 5	19
P.DATA 4	20
P.DATA 3	21
P.DATA 2	22
P.DATA 1	23
P.DATA 0	24
V-CONTROL	25
PREHEAT	26
GND	27
GND	28

CN2

1	5V
2	5V
3	5V
4	GND
5	GND
6	GND
7	$\overline{\text{RESET}}$
8	THERMISTA 1
9	$\overline{\text{WR}}$
10	DATA 0
11	DATA 1
12	DATA 2
13	DATA 3
14	DATA 4
15	DATA 5
16	DATA 6
17	DATA 7
18	AD 0
19	AD 1
20	AD 2
21	AD 3
22	$\overline{\text{CS 0}}$
23	$\overline{\text{CS 1}}$
24	CS 2
25	GND
26	GND
27	GND
28	GND

P1	HEAD	1
P2	HEAD	2
P3	HEAD	3
P4	HEAD	4
P5	GND	5
P6	GND	6
P7	GND	7
P8	GND	8

1	GND	01
2	THERMISTA 2	02
3	THERMISTA 1	03
4	VDD	04
5	CLOCK	05
6	LATCH	06
7	DATA 1	07
8	DATA 2	08
9	STROBE	09
10	GND	010

CN3

1	GND	01
2	THERMISTA 2	02
3	THERMISTA 1	03
4	VDD	04
5	CLOCK	05
6	LATCH	06
7	DATA 1	07
8	DATA 2	08
9	STROBE	09
10	GND	010

6-2. PRINTE

THIS NOTE I
BOARDS ANI
(In addition to
each block.)

- **For printed**
- ● : Throug
- ▨ : Pattern
  (The other laye

* Caution:
Pattern face side
(Conductor Side
Parts face side:
(Component sid

- **For schemat**
- Caution when
  New parts mus
  Be careful not
  because it is d
- All resistors are
  Chip resistor a
  kΩ : 1000Ω, M
- All capacitors a
  50V or less
  tantalums.
- All variable and
  unless otherwis
- : nonflan

6-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**

- ● : Through hole.
- ▒ : Pattern from the side which enables seeing.
  (The other layer's patterns are not indicated)

* Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/8W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊡ : nonflammable resistor.

- -WW- : fusible resistor.
- □ : panel designation.
- △ : internal component.
- □ : adjustment for repair.*
- — : B+ Line.*
- - - - : B– Line.*
- ⇒ : IN/OUT direction of (+, –) B LINE.*
- Circled numbers refer to waveforms.*
- Voltages are dc between ground and measurement points.*
- Readings are taken with a color-bar signal input.*
- Readings are taken with a digital multimeter (DC10MΩ).*
- Voltages are taken with a VOM (Input impedance 10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

* indicated by the color red.

(DIODE)

D101	8-719-108-12	DIODE	RD9.1E-W
D102	8-719-108-12	DIODE	RD9.1E-W
D103	8-719-108-12	DIODE	RD9.1E-W
D105	8-719-104-34	DIODE	1S2836
D106	8-719-108-12	DIODE	RD9.1E-W
D107	8-719-108-12	DIODE	RD9.1E-W
D108	8-719-108-12	DIODE	RD9.1E-W
D401	8-719-400-18	DIODE	MA152WK
D402	8-719-800-76	DIODE	1SS226
D501	8-719-400-18	DIODE	MA152WK
D502	8-719-400-18	DIODE	MA152WK
D503	8-719-800-76	DIODE	1SS226
D504	8-719-800-76	DIODE	1SS226
D601	8-719-800-09	DIODE	1SV101
D602	8-713-300-57	DIODE	1T33
D603	8-719-400-18	DIODE	MA152WK
D701	8-719-104-34	DIODE	1S2836
D702	8-719-104-34	DIODE	1S2836

(IC)

IC001	8-759-604-35	IC	M5F78M05
IC101	8-759-710-07	IC	NJM2234M
IC102	8-759-710-07	IC	NJM2234M
IC103	8-759-710-07	IC	NJM2234M
IC104	8-759-710-86	IC	NJM2233BM
IC105	8-759-710-86	IC	NJM2233BM
IC106	8-759-057-40	IC	MC14577BF
IC107	8-759-057-40	IC	MC14577BF
IC108	8-759-710-86	IC	NJM2233BM
IC109	8-759-057-40	IC	MC14577BF
IC201	8-759-982-05	IC	RC7805FA
IC202	8-759-057-40	IC	MC14577BF
IC203	8-752-334-55	IC	CXD1175AM
IC204	8-752-342-61	IC	CXD2105AQ
IC205	8-759-242-74	IC	TC7W04F
IC401	8-759-057-43	IC	MC14576BF
IC403	8-752-036-21	IC	CXA1213S
IC404	8-759-242-64	IC	TC4W53F
IC405	8-759-908-17	IC	TL082CPS
IC501	8-752-030-31	IC	CXA1024S
IC502	8-759-908-17	IC	TL082CPS
IC601	8-752-332-67	IC	CXD1217M
IC603	8-759-242-76	IC	TC7W08F
IC604	8-759-242-64	IC	TC4W53F
IC605	8-759-987-20	IC	CXD1229Q
IC606	8-759-242-74	IC	TC7W04F
IC607	8-759-101-12	IC	uPC311G2
IC608	8-759-925-90	IC	SN74HC74ANS
IC609	8-759-242-74	IC	TC7W04F
IC610	8-752-332-67	IC	CXD1217M
IC611	8-759-008-45	IC	MC74HC4538F
IC612	8-759-927-46	IC	SN74HC00ANS
IC613	8-759-008-45	IC	MC74HC4538F
IC614	8-759-926-29	IC	SN74HC175ANS
IC615	8-759-927-46	IC	SN74HC00ANS
IC616	8-759-925-90	IC	SN74HC74ANS
IC617	8-759-925-72	IC	SN74HC02ANS
IC618	8-759-076-26	IC	M50555-190SP
IC619	8-759-926-18	IC	SN74HC157ANS
IC650	8-759-710-61	IC	NJM2229M
IC660	8-		
IC701	8-		
IC702	8-		
IC703	8-		
IC704	8-		
IC704	8-		
IC705	8-		
IC801	8-		
IC802	8-		
IC803	8-		

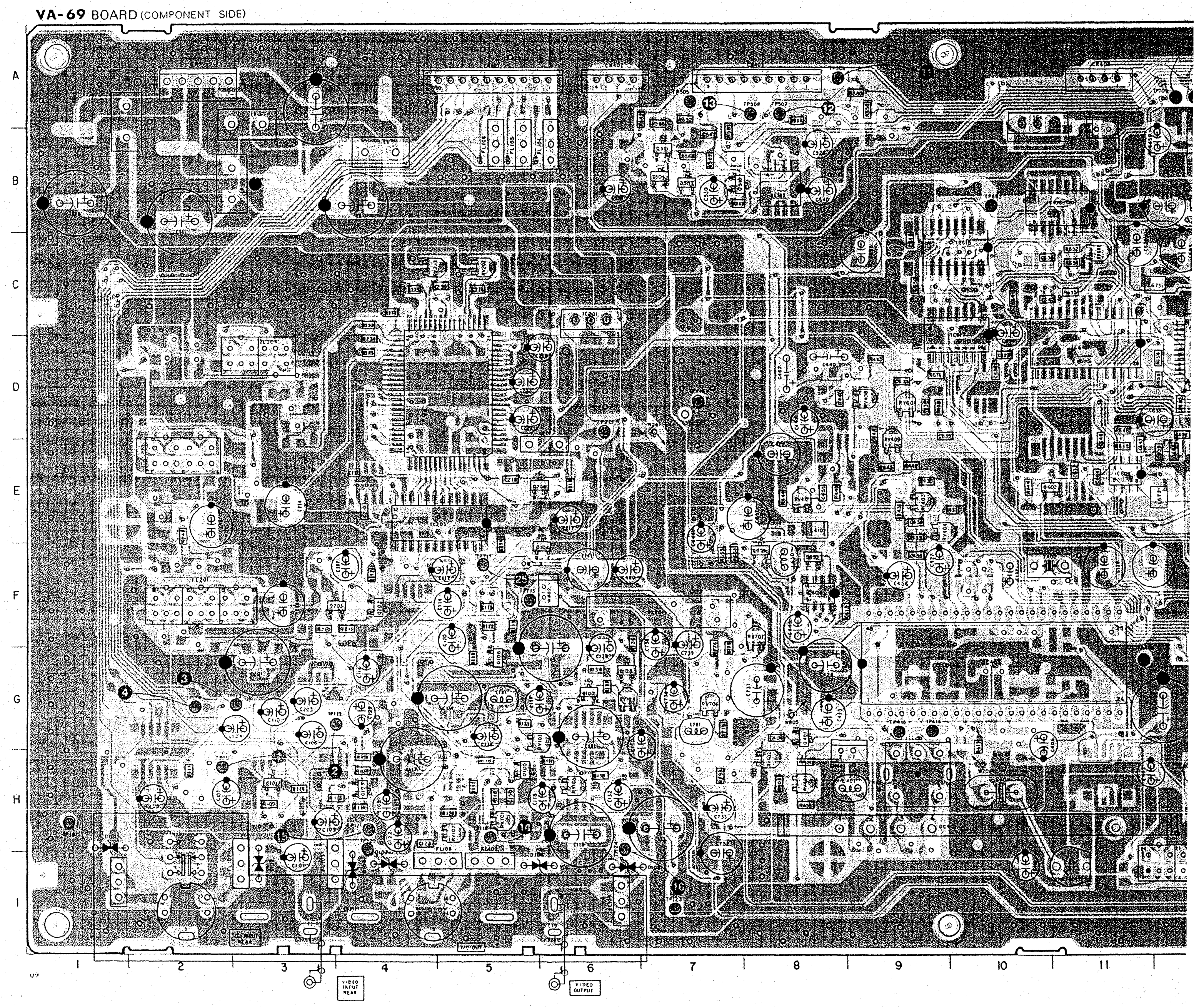
VA-69 (VIDEO (ANALOG)) PRINTED WIRING BOARD

— Ref. No. VA-69 BOARD: 1000 series —

Note:

- ○: Through hole

VA-69 BOARD (COMPONENT SIDE)



759-908-17	IC	TL082CPS
752-332-67	IC	CXD1217M
759-242-76	IC	TC7W08F
759-242-64	IC	TC4W53F
759-987-20	IC	CXD1229Q
759-242-74	IC	TC7W04F
759-101-12	IC	uPC311G2
759-925-90	IC	SN74HC74ANS
759-242-74	IC	TC7W04F
752-332-67	IC	CXD1217M
759-008-45	IC	MC74HC4538F
759-927-46	IC	SN74HC00ANS
759-008-45	IC	MC74HC4538F
759-926-29	IC	SN74HC175ANS
759-927-46	IC	SN74HC00ANS
759-925-90	IC	SN74HC74ANS
759-925-72	IC	SN74HC02ANS
759-076-26	IC	M50555-190SP
759-926-18	IC	SN74HC157ANS
759-710-61	IC	NJM2229M

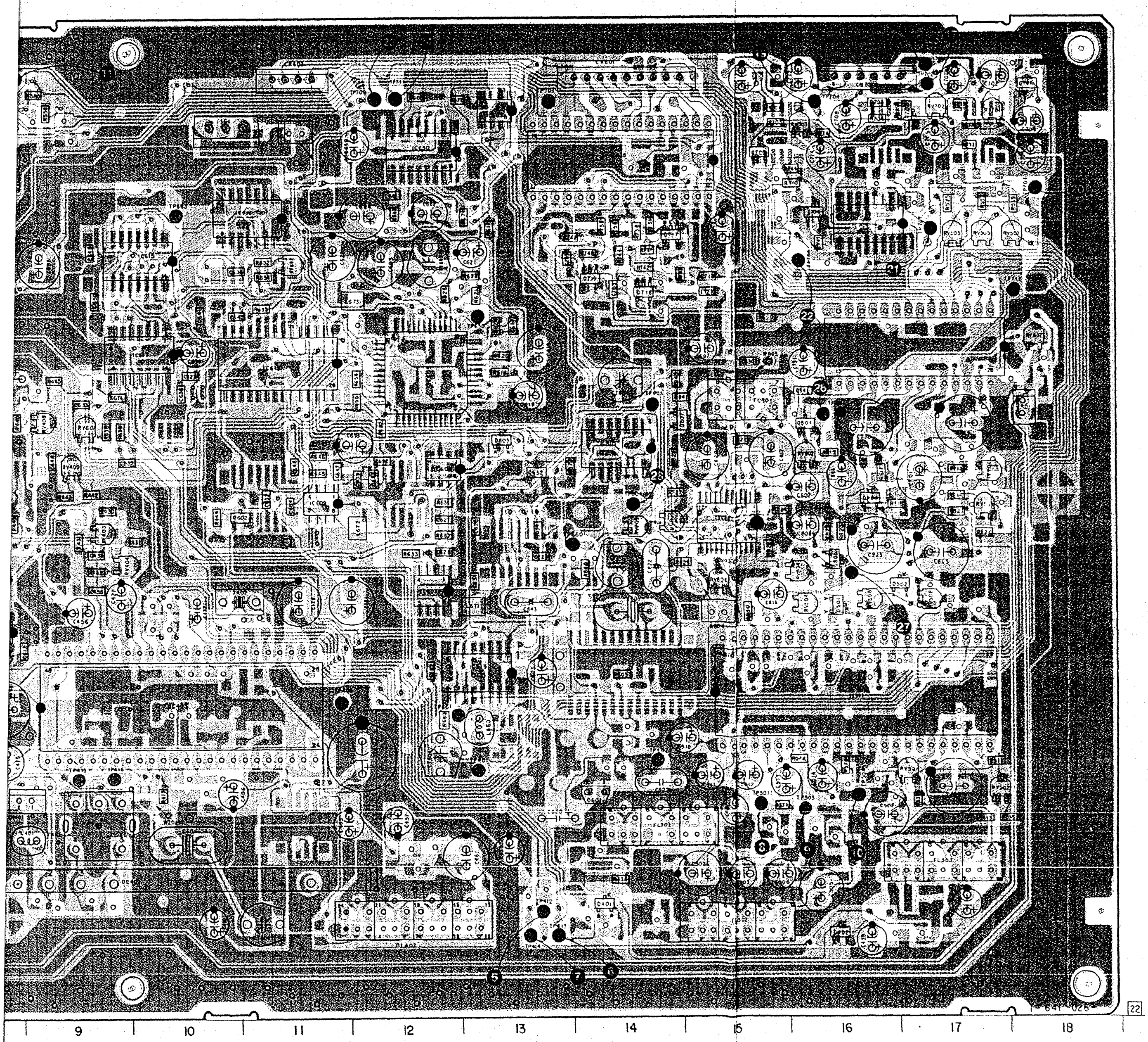
IC660	8-759-242-74	IC	TC7W04F
IC701	8-759-710-86	IC	NJM2233BM
IC702	8-759-710-86	IC	NJM2233BM
IC703	8-759-710-86	IC	NJM2233BM
IC704	8-759-300-71	IC	TC4053BF
IC704	8-759-103-25	IC	uPD4053BG
IC705	8-752-033-58	IC	V7040
IC801	8-759-603-56	IC	M51272FP
IC802	8-759-925-90	IC	SN74HC74ANS
IC803	8-759-239-23	IC	TC74HC86AF

(TRANSISTOR)

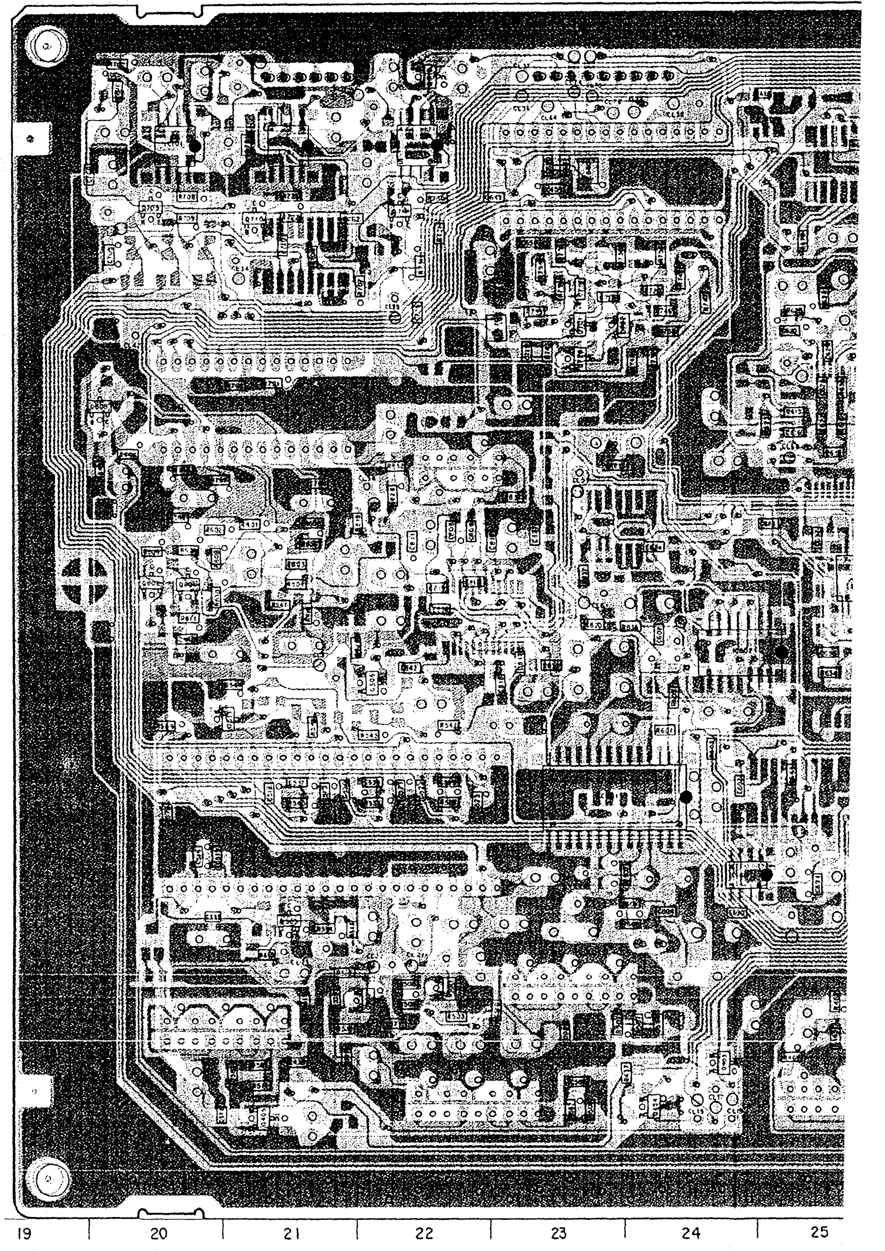
Q101	8-729-100-66	TRANSISTOR	2SC1623-L6
Q102	8-729-100-66	TRANSISTOR	2SC1623-L6
Q103	8-729-100-66	TRANSISTOR	2SC1623-L6
Q104	8-729-901-01	TRANSISTOR	DTC144EK
Q105	8-729-100-66	TRANSISTOR	2SC1623-L6
Q106	8-729-100-66	TRANSISTOR	2SC1623-L6
Q107	8-729-100-66	TRANSISTOR	2SC1623-L6
Q108	8-729-100-66	TRANSISTOR	2SC1623-L6
Q109	8-729-901-01	TRANSISTOR	DTC144EK
Q201	8-729-100-66	TRANSISTOR	2SC1623-L6
Q202	8-729-216-22	TRANSISTOR	2SA1162-L6
Q203	8-729-100-66	TRANSISTOR	2SC1623-L6
Q204	8-729-100-66	TRANSISTOR	2SC1623-L6
Q205	8-729-100-66	TRANSISTOR	2SC1623-L6
Q206	8-729-216-22	TRANSISTOR	2SA1162-G
Q207	8-729-100-66	TRANSISTOR	2SC1623
Q208	8-729-100-66	TRANSISTOR	2SC1623-L6
Q209	8-729-216-22	TRANSISTOR	2SA1162-G
Q210	8-729-100-66	TRANSISTOR	2SC1623-L6
Q211	8-729-100-66	TRANSISTOR	2SC1623-L6

Q212	8-729-100-66	TRANSISTOR	2SC1623-L6
Q401	8-729-100-66	TRANSISTOR	2SC1623-L6
Q402	8-729-100-66	TRANSISTOR	2SC1623-L6
Q403	8-729-100-66	TRANSISTOR	2SC1623-L6
Q404	8-729-100-66	TRANSISTOR	2SC1623-L6
Q405	8-729-100-66	TRANSISTOR	2SC1623-L6
Q406	8-729-901-01	TRANSISTOR	DTC144EK
Q501	8-729-100-66	TRANSISTOR	2SC1623-L6
Q502	8-729-100-66	TRANSISTOR	2SC1623-L6
Q503	8-729-100-66	TRANSISTOR	2SC1623-L6
Q504	8-729-216-22	TRANSISTOR	2SA1162-G
Q505	8-729-100-66	TRANSISTOR	2SC1623-L6
Q506	8-729-216-22	TRANSISTOR	2SA1162-G
Q507	8-729-100-66	TRANSISTOR	2SC1623-L6
Q508	8-729-216-22	TRANSISTOR	2SA1162-G
Q509	8-729-100-66	TRANSISTOR	2SC1623-L6
Q510	8-729-100-66	TRANSISTOR	2SC1623-L6
Q511	8-729-216-22	TRANSISTOR	2SA1162-G
Q513	8-729-100-66	TRANSISTOR	2SC1623-L6
Q601	8-729-100-66	TRANSISTOR	2SC1623-L6

Q602	8-729-901-01	TRANSISTOR	DTC
Q650	8-729-100-66	TRANSISTOR	2SC
Q651	8-729-100-66	TRANSISTOR	2SC
Q652	8-729-901-01	TRANSISTOR	DTC
Q701	8-729-100-66	TRANSISTOR	2SC
Q702	8-729-100-66	TRANSISTOR	2SC
Q703	8-729-100-66	TRANSISTOR	2SC
Q704	8-729-100-66	TRANSISTOR	2SC
Q705	8-729-100-66	TRANSISTOR	2SC
Q710	8-729-100-66	TRANSISTOR	2SC
Q715	8-729-100-66	TRANSISTOR	2SC
Q716	8-729-901-01	TRANSISTOR	DT
Q717	8-729-902-96	TRANSISTOR	FM
Q718	8-729-902-96	TRANSISTOR	FM
Q719	8-729-902-96	TRANSISTOR	FM
Q720	8-729-216-22	TRANSISTOR	2S
Q727	8-729-100-66	TRANSISTOR	2S
Q728	8-729-216-22	TRANSISTOR	2S
Q729	8-729-100-66	TRANSISTOR	2S
Q730	8-729-100-66	TRANSISTOR	2S



VA-69 BOARD (CONDUCTOR SIDE)



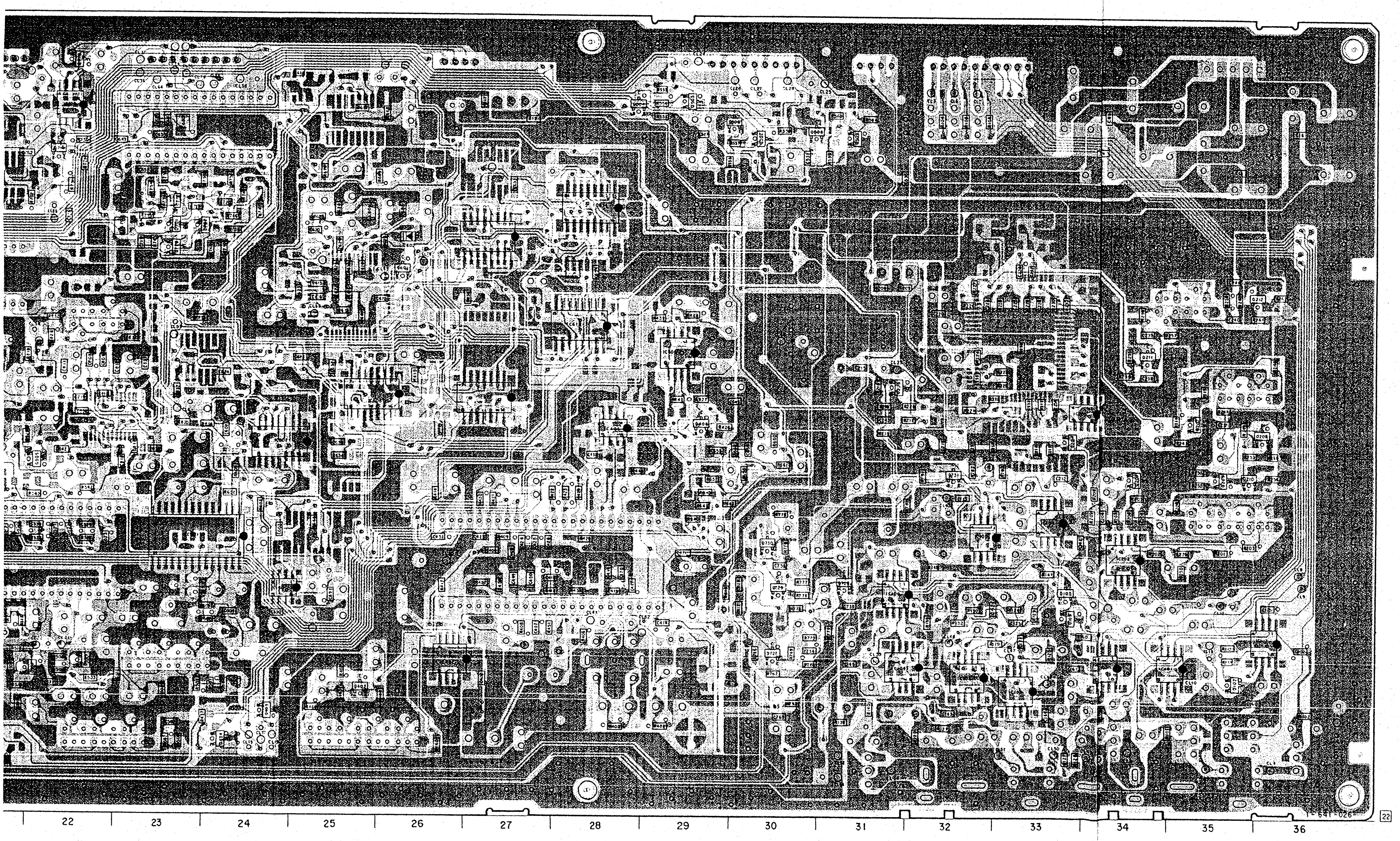
2SC1623-L6
2SC1623-L6
2SC1623-L6
2SC1623-L6
2SC1623-L6

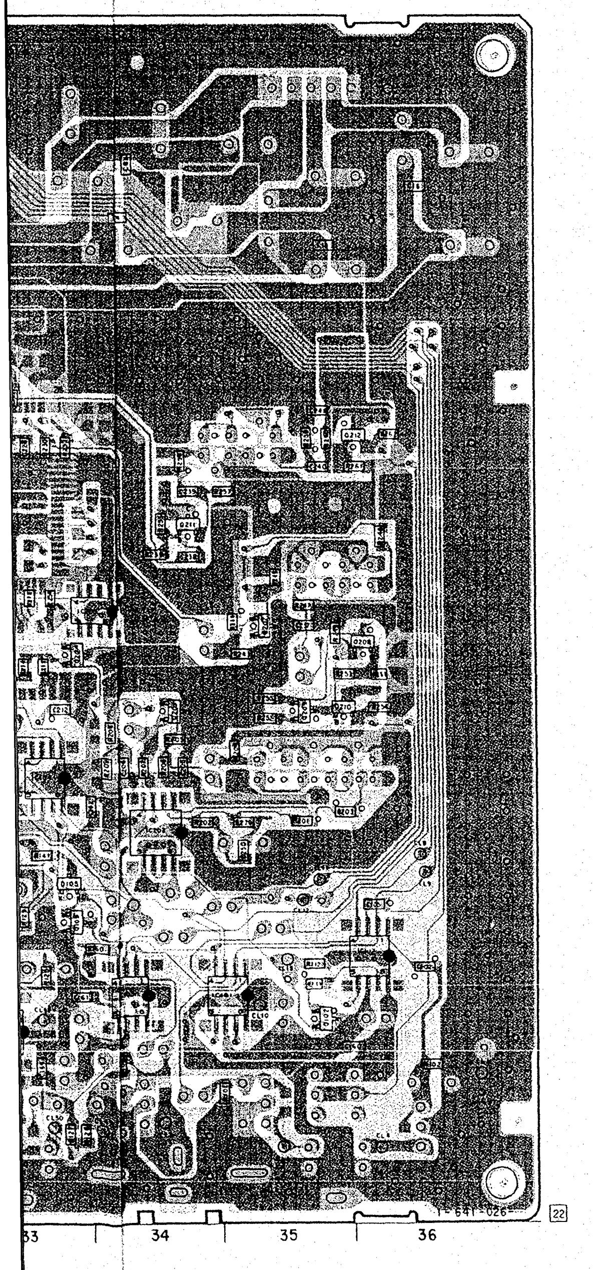
2SC1623-L6
DTC144EK
2SC1623-L6
2SC1623-L6
2SC1623-L6

2SA1162-G
2SC1623-L6
2SA1162-G
2SC1623-L6
2SA1162-G

2SC1623-L6
2SC1623-L6
2SA1162-G
2SC1623-L6
2SC1623-L6

Q602	8-729-901-01	TRANSISTOR	DTC144EK
Q650	8-729-100-66	TRANSISTOR	2SC1623-L6
Q651	8-729-100-66	TRANSISTOR	2SC1623-L6
Q652	8-729-901-01	TRANSISTOR	DTC144EK
Q701	8-729-100-66	TRANSISTOR	2SC1623-L6
Q702	8-729-100-66	TRANSISTOR	2SC1623-L6
Q703	8-729-100-66	TRANSISTOR	2SC1623-L6
Q704	8-729-100-66	TRANSISTOR	2SC1623-L6
Q705	8-729-100-66	TRANSISTOR	2SC1623-L6
Q710	8-729-100-66	TRANSISTOR	2SC1623-L6
Q715	8-729-100-66	TRANSISTOR	2SC1623-L6
Q716	8-729-901-01	TRANSISTOR	DTC144EK
Q717	8-729-902-96	TRANSISTOR	FMS1
Q718	8-729-902-96	TRANSISTOR	FMS1
Q719	8-729-902-96	TRANSISTOR	FMS1
Q720	8-729-216-22	TRANSISTOR	2SA1162-G
Q727	8-729-100-66	TRANSISTOR	2SC1623-L6
Q728	8-729-216-22	TRANSISTOR	2SA1162-G
Q729	8-729-100-66	TRANSISTOR	2SC1623-L6
Q730	8-729-100-66	TRANSISTOR	2SC1623-L6
Q731	8-729-100-66	TRANSISTOR	2SC1623-L6
Q801	8-729-100-66	TRANSISTOR	2SC1623-L6
Q802	8-729-100-66	TRANSISTOR	2SC1623-L6
Q803	8-729-100-66	TRANSISTOR	2SC1623-L6
Q804	8-729-100-66	TRANSISTOR	2SC1623-L6
Q805	8-729-100-66	TRANSISTOR	2SC1623-L6
Q806	8-729-100-66	TRANSISTOR	2SC1623-L6
Q807	8-729-216-22	TRANSISTOR	2SA1162-L6
Q808	8-729-216-22	TRANSISTOR	2SA1162-L6





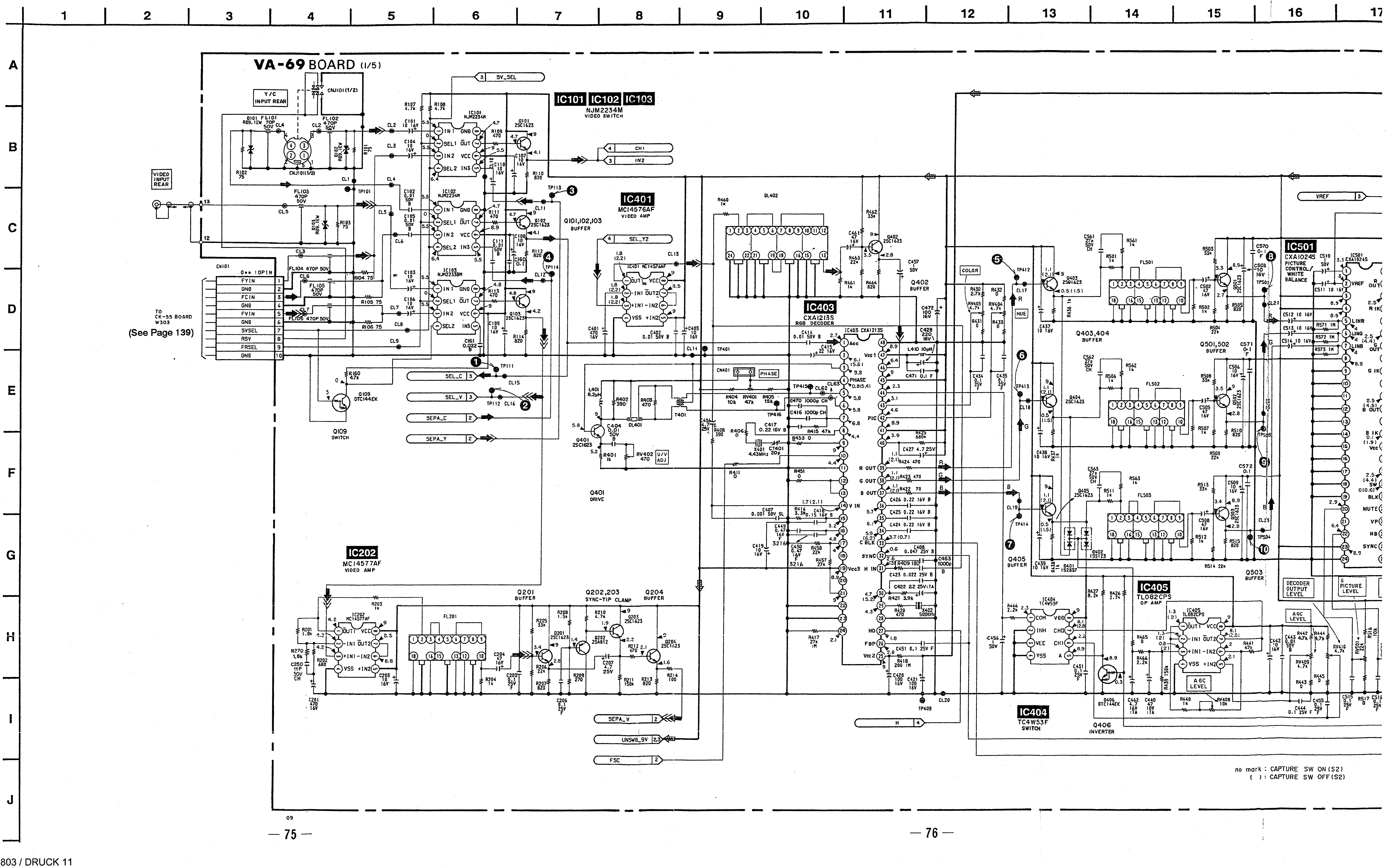
VA-69 BOARD

CN001	A-2
CN101	A-5
CN401	H-8
CN402	A-6
CN403	A-7
CN601	A-14
CN602	A-11
CN701	A-16
CT401	I-11
CT601	F-14
CT603	C-12
CT604	G-12
CT801	D-14
D101	H-1
D102	I-3
D103	I-4
D105	G-33
D106	I-5
D107	I-4
D108	I-6
D401	I-14
D402	I-16
D501	F-16
D502	F-16
D503	B-7
D504	B-7
D601	H-14
D602	C-26
D603	D-13
D701	C-23
D702	C-24
IC001	A-10
IC101	H-35
IC102	H-36
IC103	H-34
IC104	F-33
IC105	F-32
IC106	H-32
IC107	H-33
IC108	G-31
IC109	G-31
IC201	C-6
IC202	G-34
IC203	E-5
IC204	D-5
IC205	E-34
IC401	H-26
IC403	G-10
IC404	E-28
IC405	D-29
IC501	G-166
IC502	B-8
IC601	F-23
IC603	A-13
IC604	F-8
IC605	D-12
IC606	E-12
IC607	F-12
IC608	E-25
IC609	E-11
IC610	D-11
IC611	D-28
IC612	E-27
IC613	C-27
IC614	C-28
IC615	C-10
IC616	B-11
IC617	D-10
IC618	B-14
IC619	F-13
IC650	B-12
IC660	G-24
IC701	B-20
IC702	B-21
IC703	B-22
IC704	B-16
IC705	D-17
IC801	E-15
IC802	F-24
IC803	D-14
Q101	H-3
Q102	H-35
Q103	H-4
Q104	F-6
Q105	H-5
Q106	G-5
Q107	G-6
Q108	G-6
Q109	G-33
Q201	F-34
Q202	F-4
Q203	F-4
Q204	E-33
Q205	E-31
Q206	E-6
Q207	E-35
Q208	E-36
Q209	F-35
Q210	F-35
Q211	D-34
Q212	D-36
Q401	G-8
Q402	H-25
Q403	H-24
Q404	I-24
Q405	I-21
Q406	E-29
Q501	H-22
Q502	H-22
Q503	G-21
Q504	A-28
Q505	A-29
Q506	B-30
Q507	B-30
Q508	B-30
Q509	B-31
Q510	B-7
Q511	B-7
Q513	F-21
Q601	C-26
Q602	E-11
Q650	F-8
Q651	F-8
Q652	E-13
Q701	A-18
Q702	A-17
Q703	B-15
Q704	B-16
Q705	B-20
Q710	B-21
Q715	B-22
Q716	A-22
Q717	B-14
Q718	C-14
Q719	C-14
Q720	C-23
Q727	H-30
Q728	G-31
Q729	G-30
Q730	G-30
Q731	F-32
Q801	E-20
Q802	E-20
Q803	E-16
Q804	D-16
Q805	E-16
Q806	F-22
Q807	D-14
Q808	D-20
RV101	H-5
RV102	H-5
RV103	G-6
RV104	G-6
RV105	H-6
RV202	C-5
RV203	C-5
RV401	E-8
RV402	E-8
RV403	E-9
RV404	E-9
RV408	D-9
RV409	D-9
RV410	E-8
RV501	G-17
RV502	G-17
RV503	B-17
RV504	G-16
RV505	B-17
RV506	F-16
RV507	B-18
RV508	F-17
RV601	D-9
RV602	C-11
RV701	A-17
RV702	A-17
RV703	A-16
RV706	G-7
RV707	F-8
RV801	E-17
RV802	D-16
RV803	E-17
RV804	E-16
RV805	E-14
RV806	F-16
RV807	C-18
RV809	E-14
TP101	H-1
TP111	H-2
TP112	G-3
TP113	G-2
TP114	G-2
TP118	H-5
TP120	H-4
TP121	H-4
TP123	I-7
TP124	H-6
TP201	D-6
TP401	G-13
TP409	G-11
TP412	I-13
TP413	I-13
TP414	I-13
TP415	G-9
TP416	G-9
TP501	H-15
TP503	H-16
TP504	G-16
TP505	A-7
TP506	A-8
TP507	A-8
TP508	A-8
TP650	C-13
TP660	E-14
TP661	G-12
TP662	G-14
TP663	B-10
TP701	A-13
TP702	A-17
TP703	A-17
TP704	A-16
TP706	B-18
TP707	B-17
TP708	C-16
TP709	A-12
TP711	A-12
TP712	A-12
TP713	F-5
TP714	D-7
TP715	F-5
TP801	D-16
TP803	D-14
TP804	E-14

VA-69 (VIDEO (ANALOG)) SCHEMATIC DIAGRAM

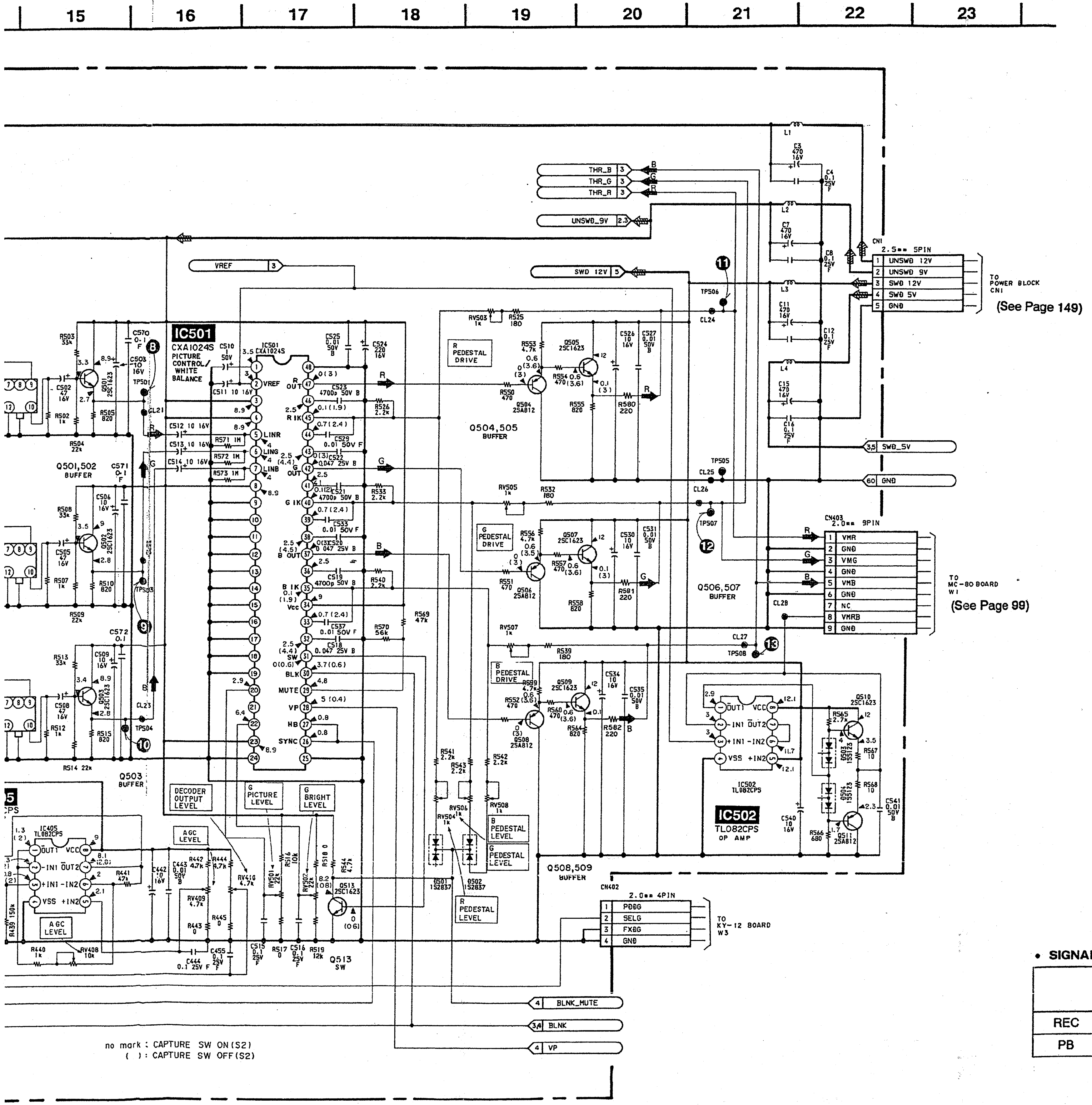
— Ref. No. VA-69 BOARD: 1000 series —

- **Refer to page 71 for Printed Wiring Board**

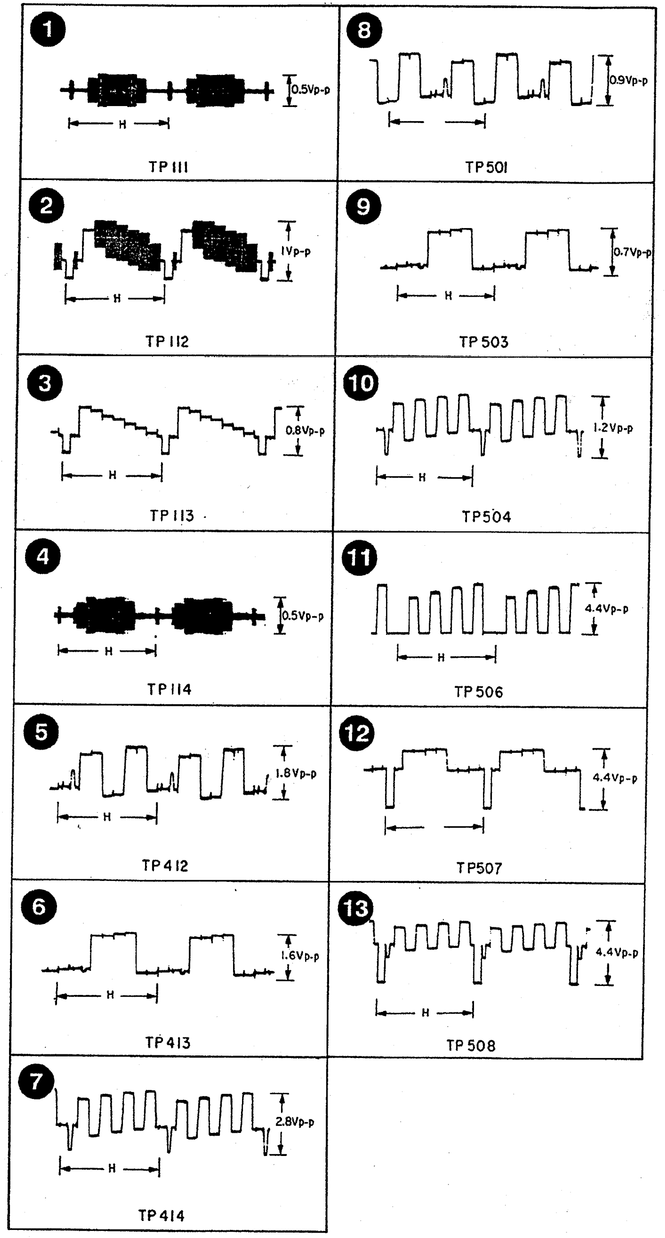


VA-69 BOARD (1/5)
IC101 IC102 IC103
NJM2234M
VIDEO SWITCH
IC401
MC14576AF
VIDEO AMP
IC403
CXA1213S
RGB DECODER
IC501
CXA1024S
PICTURE CONTROL/WHITE BALANCE
IC202
MC14577AF
VIDEO AMP
IC404
TC4W53F
SWITCH
IC405
TL082CPS
OP AMP
Q101,102,103
BUFFER
Q109
SWITCH
Q201
BUFFER
Q202,203
SYNC-TIP CLAMP
Q204
BUFFER
Q401
DRIVE
Q402
BUFFER
Q403,404
BUFFER
Q405
BUFFER
Q406
INVERTER
Q501,502
BUFFER
Q503
BUFFER
Y/C INPUT REAR
VIDEO INPUT REAR
CNJ101(1/2)
CN101
TO CK-55 BOARD W303
(See Page 139)
FYIN
GND
FCIN
GND
FVIN
GND
SVSEL
RSV
FRSEL
GND
SV_SEL
CH1
IN2
SEL_Y2
SEL_C
SEL_V
SEPA_C
SEPA_Y
SEPA_V
UNSWB_9V
FSC
H
VREF
COLOR
HUE
PHASE
RV402 U/V ADJ
DECODER OUTPUT LEVEL
PICTURE LEVEL
AGC LEVEL
DL401
DL402
FL201
FL501
FL502
FL503
X401 4.43MHz

no mark : CAPTURE SW ON (S2)
( ) : CAPTURE SW OFF (S2)


15
16
17
18
19
20
21
22
23
IC501
CXA1024S
PICTURE CONTROL/ WHITE BALANCE
IC502
TL082CPS
OP AMP
Q501,502 BUFFER
Q503 BUFFER
Q504,505 BUFFER
Q506,507 BUFFER
Q508,509 BUFFER
Q513 SW
R PEDESTAL DRIVE
G PEDESTAL DRIVE
B PEDESTAL DRIVE
DECODER OUTPUT LEVEL
G PICTURE LEVEL
G BRIGHT LEVEL
AGC LEVEL
B PEDESTAL LEVEL
G PEDESTAL LEVEL
R PEDESTAL LEVEL
THR_B
THR_G
THR_R
UNSWD_9V
VREF
SWD 12V
CN1 2.5mm 5PIN
UNSWD 12V
UNSWD 9V
SWD 12V
SWD 5V
GND
TO POWER BLOCK CN1
(See Page 149)
SWD_5V
GND
CN403 2.0mm 9PIN
VMR
GND
VMG
GND
VMB
GND
NC
VMRB
GND
TO MC-80 BOARD W1
(See Page 99)
CN402 2.0mm 4PIN
PDBG
SELG
FXBG
GND
TO KY-12 BOARD W3
BLNK_MUTE
BLNK
VP
no mark : CAPTURE SW ON(S2)
( ) : CAPTURE SW OFF(S2)

VA-69 BOARD(1/5)



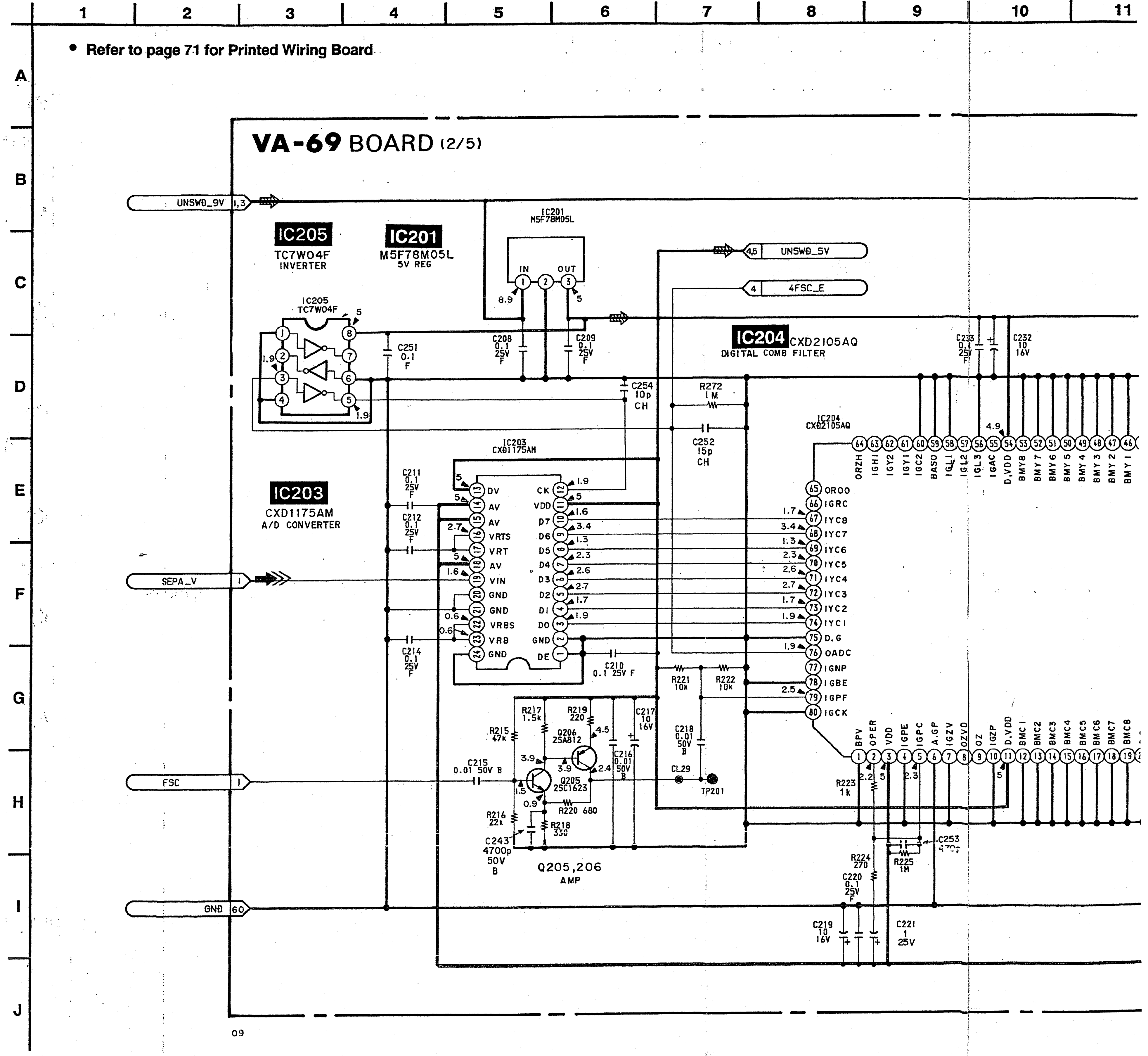
- **SIGNAL PATH (ANALOG)**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛	⋙	
PB				

VA-69 (VIDEO (ANALOG)) SCHEMATIC DIAGRAM

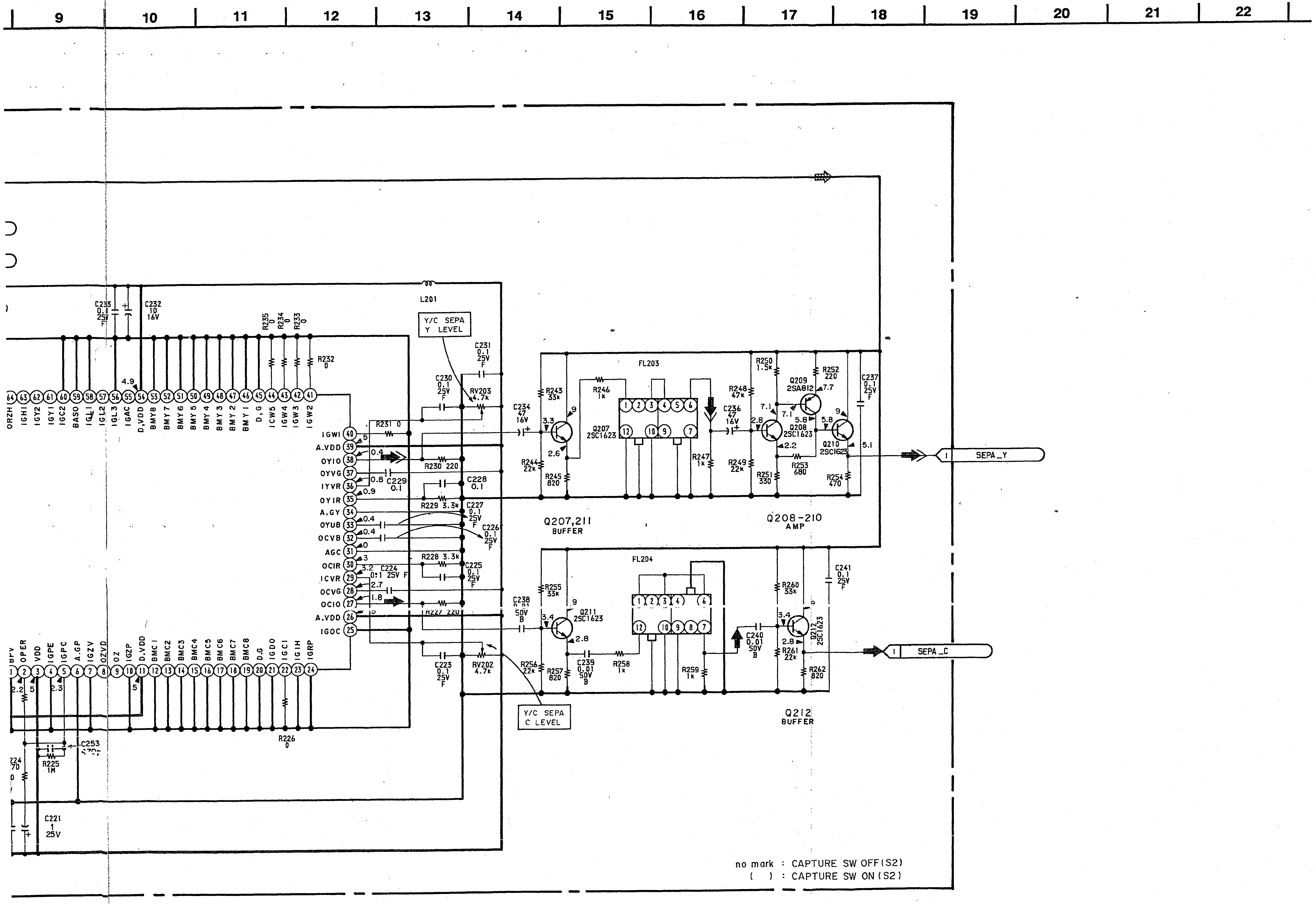
— Ref. No. VA-69 BOARD: 1000 series —

- Refer to page 71 for Printed Wiring Board


1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H I J
VA-69 BOARD (2/5)
UNSW9_9V 1,3
IC205 TC7W04F INVERTER
IC201 M5F78M05L 5V REG
IC201 M5F78M05L
IN OUT
8.9
5
UNSW9_5V 4,5
4FSC_E 4
IC205 TC7W04F
1.9
C251 0.1 F
C208 0.1 25V F
C209 0.1 25V F
C254 10p CH
R272 1M
C252 15p CH
IC204 CXD2105AQ DIGITAL COMB FILTER
IC204 CXD2105AQ
C233 0.1 25V F
C232 10 16V
4.9
ORZH IGHI IGY2 IGY1 IGC2 BASO IGL1 IGL2 IGL3 IGAC D.VDD BMY8 BMY7 BMY6 BMY5 BMY4 BMY3 BMY2 BMY1
OROO IGRC IYC8 IYC7 IYC6 IYC5 IYC4 IYC3 IYC2 IYC1 D.G OADC IGNP IGBE IGPF IGCK
BPV OPER VDD IGPE IGPC A.GP IGZV OZVD OZ IGZP D.VDD BMC1 BMC2 BMC3 BMC4 BMC5 BMC6 BMC7 BMC8
IC203 CXD1175AM A/D CONVERTER
IC203 CXD1175AM
DV AV AV VRTS VRT AV VIN GND GND VRBS VRB GND
CK VDD P7 D6 D5 D4 D3 D2 D1 D0 GND DE
C211 0.1 25V F
C212 0.1 25V F
C214 0.1 25V F
C210 0.1 25V F
SEPA_V 1
R221 10k
R222 10k
C218 0.01 50V B
CL29
TP201
R217 1.5k
R219 220
R215 47k
Q206 2SA812
C217 10 16V
C216 0.01 50V B
C215 0.01 50V B
Q205 2SC1623
R220 680
R216 22k
R218 330
C243 4700p 50V B
Q205,206 AMP
FSC 1
R223 1k
R224 270
R225 1M
C253
C220 0.1 25V F
C219 10 16V
C221 1 25V
GND 60
09

- **SIGNAL PATH (ANALOG)**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛	⇛	
PB				



9
10
11
12
13
14
15
16
17
18
19
20
21
22
L201
Y/C SEPA
Y LEVEL
C233 0.1 25V F
C232 10 16V
R235 0
R234 0
R233 0
R232 0
C231 0.1 25V F
C230 0.1 25V F
RV203 4.7k
R231 0
R230 220
C229 0.1
C228 0.1
R229 3.3k
C227 0.1 25V F
C226 0.1 25V F
R228 3.3k
C224 0.1 25V F
C225 0.1 25V F
R227 220
C223 0.1 25V F
RV202 4.7k
Y/C SEPA
C LEVEL
R226 0
C253
R225 1M
C221 1 25V
IGWI
A.VDD
OYIO
OYVG
IYVR
OYIR
A.GY
OYUB
OCVB
AGC
OCIR
ICVR
OCVG
OCIO
A.VDD
IGOC
ORZH
IGHI
IGY2
IGY1
IGC2
BASO
IGL1
IGL2
IGL3
IGAC
D.VDD
BMY8
BMY7
BMY6
BMY5
BMY4
BMY3
BMY2
BMY1
D.G
ICW5
IGW4
IGW3
IGW2
OPER
VDD
IGPE
IGPC
A.GP
IGZV
OZVD
OZ
IGZP
D.VDD
BMC1
BMC2
BMC3
BMC4
BMC5
BMC6
BMC7
BMC8
D.G
IGDO
IGC1
IGIH
IGRP
FL203
C234 47 16V
R243 33k
R246 1k
Q207 2SC1623
R244 22k
R245 820
R247 1k
C236 47 16V
R248 47k
R249 22k
R250 1.5k
R252 220
Q209 2SA812
Q208 2SC1623
Q210 2SC1623
R251 330
R253 680
R254 470
C237 0.1 25V F
SEPA_Y
Q207,211
BUFFER
Q208-210
AMP
FL204
C238 0.01 50V B
R255 33k
Q211 2SC1623
R256 22k
R257 820
C239 0.01 50V B
R258 1k
R259 1k
C240 0.01 50V B
R260 33k
C241 0.1 25V F
Q212 2SC1623
R261 22k
R262 820
SEPA_C
Q212
BUFFER

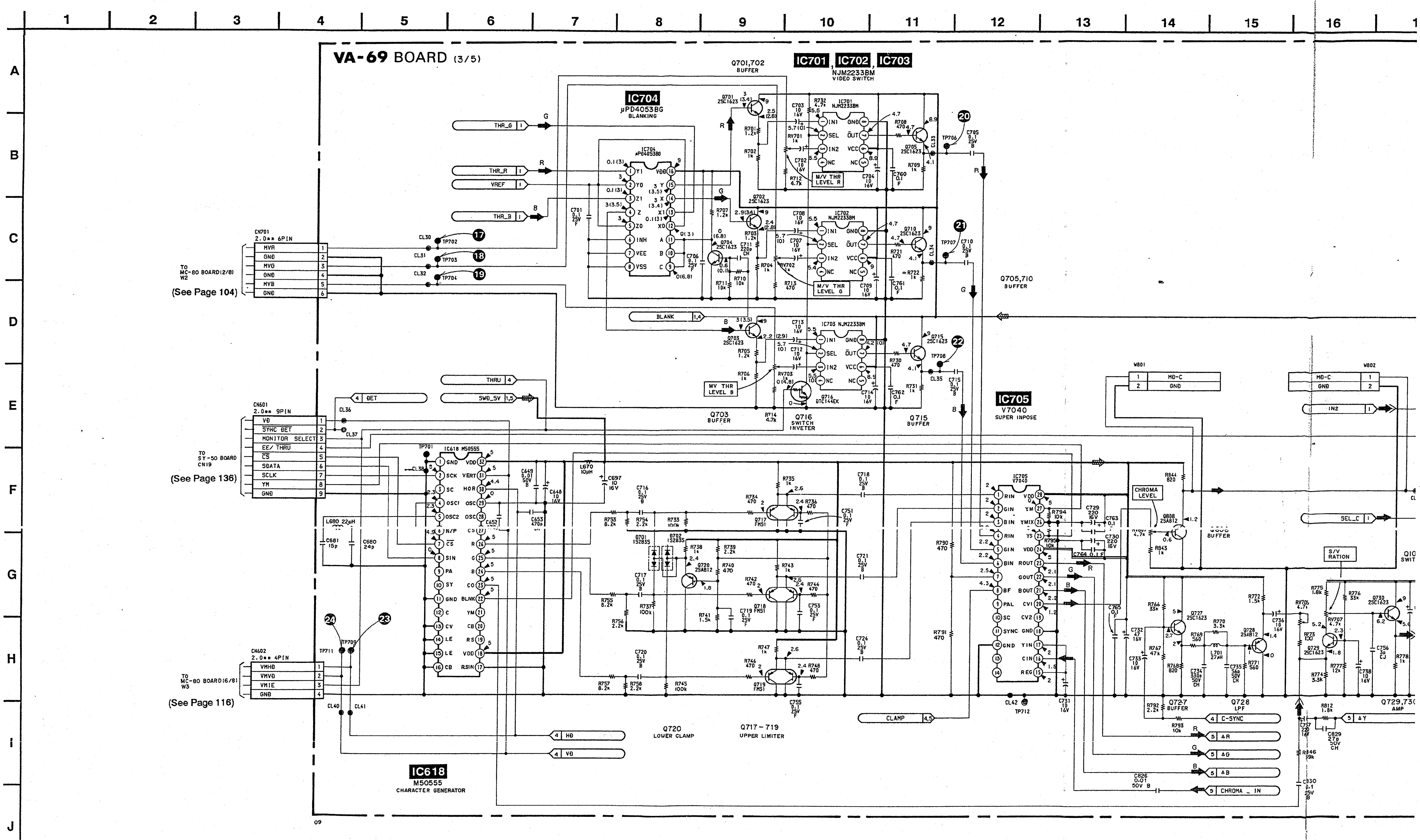
no mark : CAPTURE SW OFF(S2)
( ) : CAPTURE SW ON(S2)

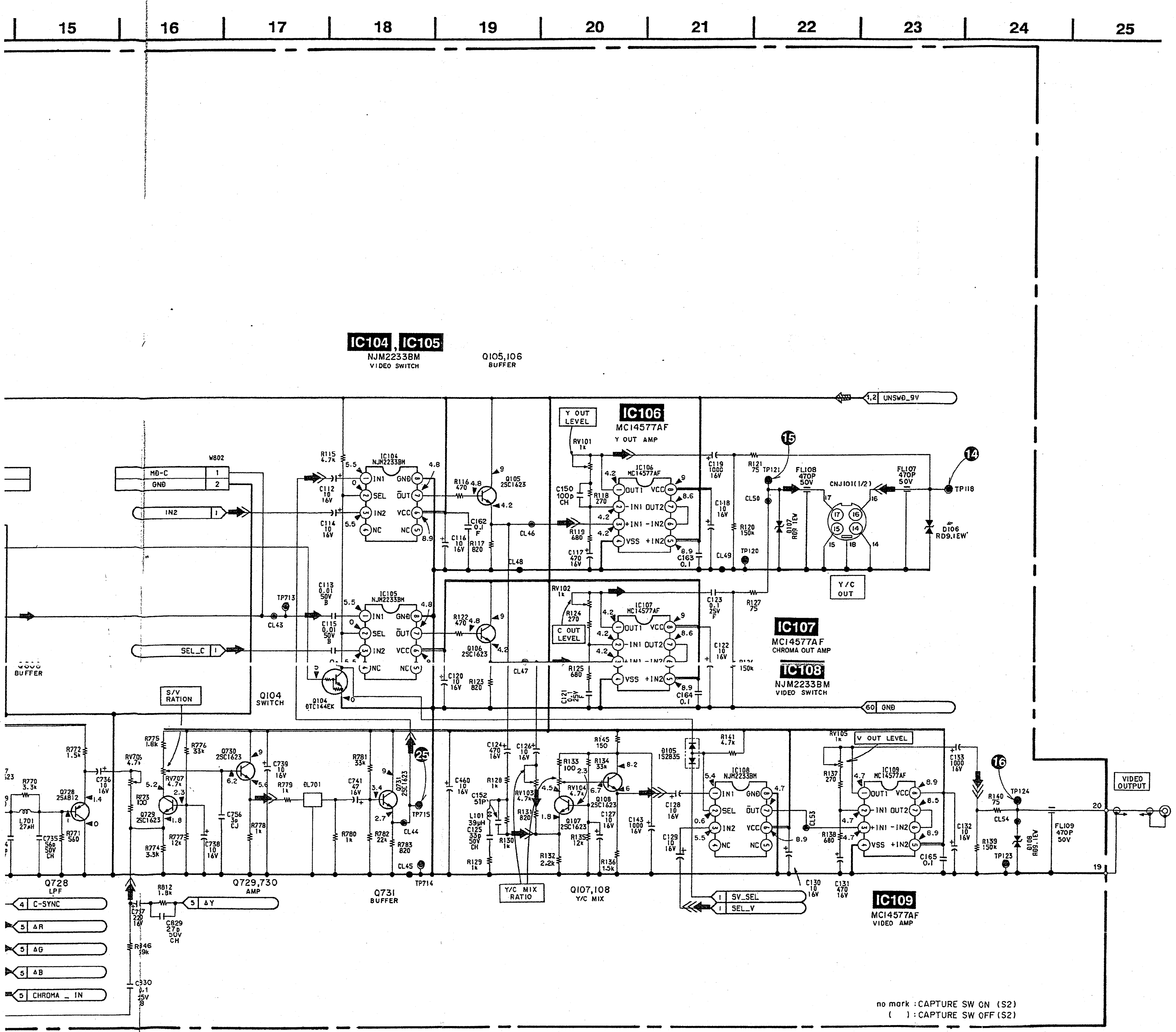
VIDEO (ANALOG) VIDEO (ANALOG)

VA-69 (VIDEO (ANALOG)) SCHEMATIC DIAGRAM

— Ref. No. VA-69 BOARD: 1000 series —

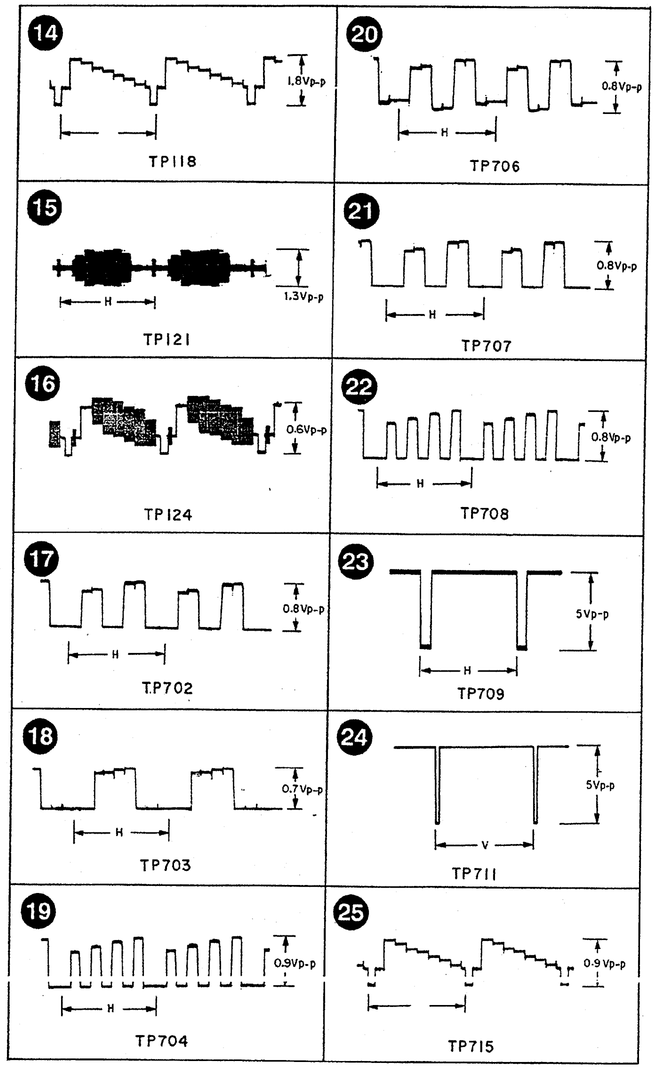
- **Refer to page 71 for Printed Wiring Board**


VA-69 BOARD (3/5)
IC701, IC702, IC703
NJM2233BM
VIDEO SWITCH
Q701,702
BUFFER
IC704
μPD4053BG
BLANKING
THR_G
THR_R
VREF
THR_B
BLANK
THRU
SWD_5V
DET
CN701
2.0mm 6PIN
MVR
GND
MVG
GND
MVB
GND
TO MC-80 BOARD(2/8) W2
(See Page 104)
CN601
2.0mm 9PIN
VD
SYNC DET
MONITOR SELECT
EE/ THRU
CS
SDATA
SCLK
YM
GND
TO SY-50 BOARD CN19
(See Page 136)
CN602
2.0mm 4PIN
VMHD
VMVD
VMIE
GND
TO MC-80 BOARD(6/8) W3
(See Page 116)
M/V THR LEVEL R
M/V THR LEVEL G
MV THR LEVEL B
Q703
BUFFER
Q716
SWITCH INVETER
Q715
BUFFER
Q705,710
BUFFER
IC705
V7040
SUPER INPOSE
IC618 M50555
IC618
M50555
CHARACTER GENERATOR
Q720
LOWER CLAMP
Q717-719
UPPER LIMITER
CLAMP
CHROMA LEVEL
Q808
BUFFER
Q727
BUFFER
Q728
LPF
Q729,730
AMP
S/V RATION
W801
MD-C
GND
W802
IN2
SEL_C
HD
VD
C-SYNC
ΔR
ΔG
ΔB
CHROMA _ IN
ΔY
TP701
TP702
TP703
TP704
TP706
TP707
TP708
TP709
TP711
TP712
17
18
19
20
21
22
23
24


15
16
17
18
19
20
21
22
23
24
25
IC104, IC105
NJM2233BM
VIDEO SWITCH
Q105,106
BUFFER
IC106
MC14577AF
Y OUT AMP
Y OUT LEVEL
RV101 1k
IC107
MC14577AF
CHROMA OUT AMP
IC108
NJM2233BM
VIDEO SWITCH
IC109
MC14577AF
VIDEO AMP
C OUT LEVEL
RV102 1k
V OUT LEVEL
RV105 1k
1,2 UNSW9_9V
60 GND
MD-C 1
GND 2
IN2
SEL_C
S/V RATION
Q104 SWITCH
Q104 DTC144EK
Q728 LPF
Q728 2SA812
Q729,730 AMP
Q731 BUFFER
Q107,108 Y/C MIX
Y/C MIX RATIO
Q105 1S2835
Y/C OUT
CNJ101(1/2)
FL108 470P 50V
FL107 470P 50V
FL109 470P 50V
D106 RD9.1EW
D107 RD9.1EW
D108 RD9.1EW
TP118
TP120
TP121
TP123
TP124
TP713
TP714
TP715
CL43
CL44
CL45
CL46
CL47
CL48
CL49
CL50
CL53
CL54
VIDEO OUTPUT
4 C-SYNC
5 ΔY
5 ΔR
5 ΔG
5 ΔB
5 CHROMA _ IN
1 SV_SEL
1 SEL_V
14
15
16
25
W802
DL701
L101 39μH
L701 27μH

no mark : CAPTURE SW ON (S2)
( ) : CAPTURE SW OFF (S2)

VA-69 BOARD (3/5)



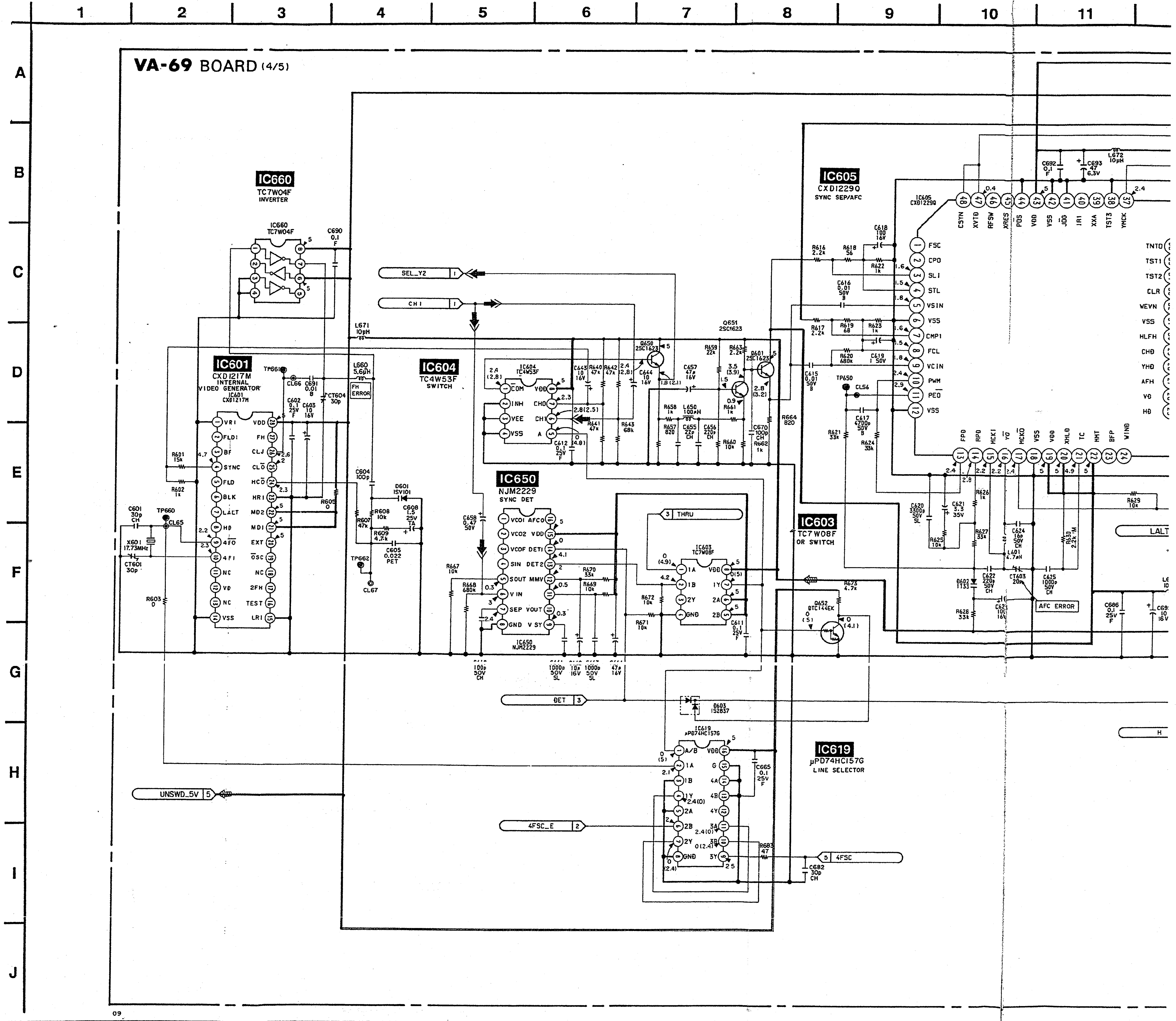
- **SIGNAL PATH (ANALOG)**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	
PB				

VA-69 (VIDEO (ANALOG)) SCHEMATIC DIAGRAM

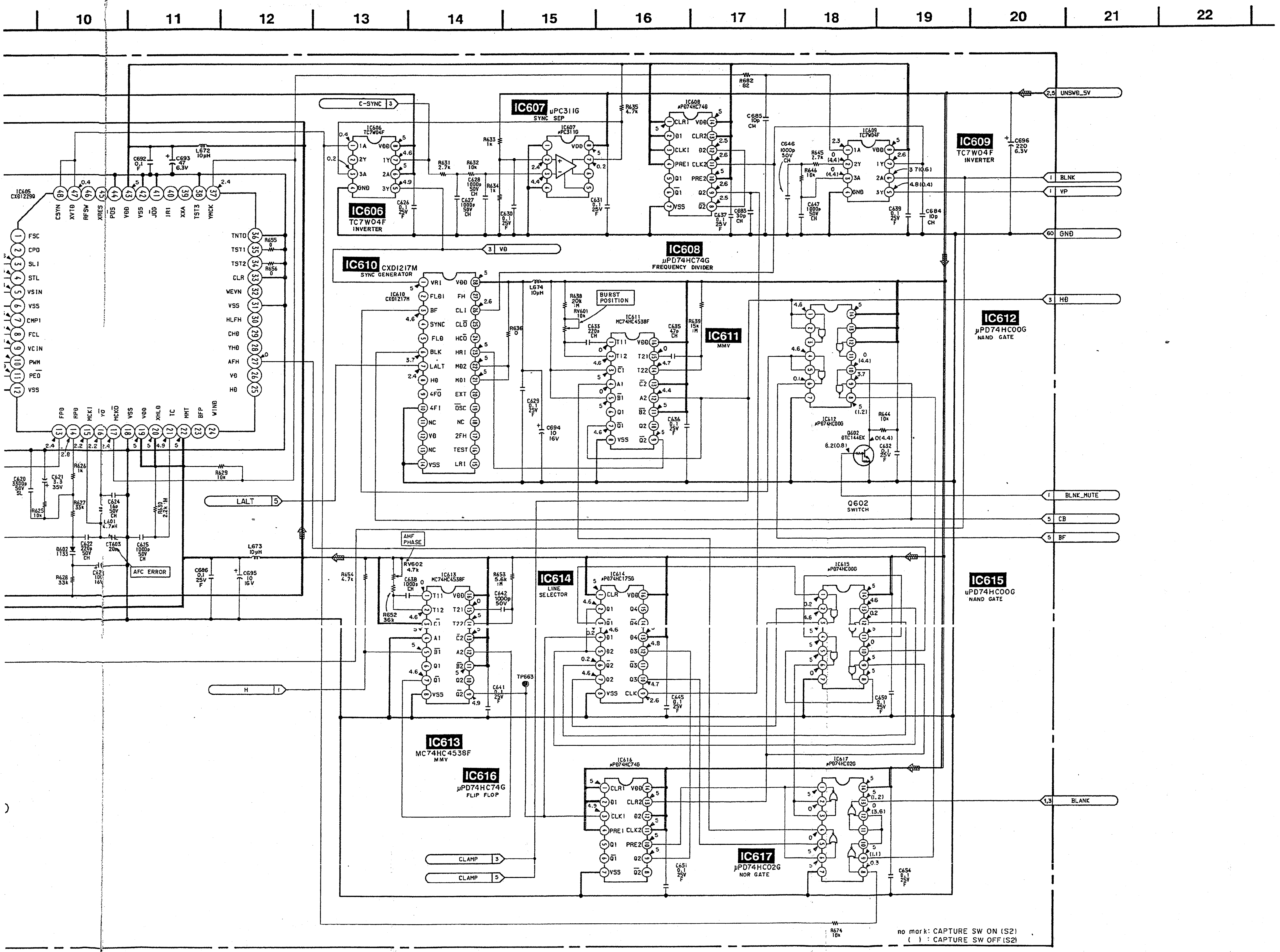
— Ref. No. VA-69 BOARD: 1000 series —

- **Refer to page 71 for Printed Wiring Board**


VA-69 BOARD (4/5)
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
IC660
TC7W04F
INVERTER
IC601
CXD1217M
INTERNAL VIDEO GENERATOR
IC604
TC4W53F
SWITCH
IC650
NJM2229
SYNC DET
IC605
CXD1229Q
SYNC SEP/AFC
IC603
TC7W08F
OR SWITCH
IC619
μPD74HC157G
LINE SELECTOR
SEL_Y2
CH1
UNSWD_5V
DET
4FSC_E
4FSC
THRU
AFC ERROR
FH ERROR
LALT
X601 17.73MHz
Q650 2SC1623
Q651 2SC1623
Q652 DTC144EK
D601 1SV101
D603 1S2837
L671 10μH
L660 5.6μH
L650 100μH
L601 4.7μH
L672 10μH

- **SIGNAL PATH (ANALOG)**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇨	➡⇨	
PB				


10
11
12
13
14
15
16
17
18
19
20
21
22
IC605 CXD1229Q
IC606 TC7W04F INVERTER
IC607 uPC311G SYNC SEP
IC608 μPD74HC74G FREQUENCY DIVIDER
IC609 TC7W04F INVERTER
IC610 CXD1217M SYNC GENERATOR
IC611 MC74HC4538F MMV
IC612 μPD74HC00G NAND GATE
IC613 MC74HC4538F MMV
IC614 μPD74HC175G LINE SELECTOR
IC615 μPD74HC00G NAND GATE
IC616 μPD74HC74G FLIP FLOP
IC617 μPD74HC02G NOR GATE
Q602 DTC144EK SWITCH
C-SYNC
VD
LALT
H
CLAMP
CLAMP
UNSW8_5V
BLNK
VP
GND
HD
BLNK_MUTE
CB
BF
BLANK
BURST POSITION
AMF PHASE
AFC ERROR
TP663
no mark: CAPTURE SW ON (S2)
( ) : CAPTURE SW OFF (S2)

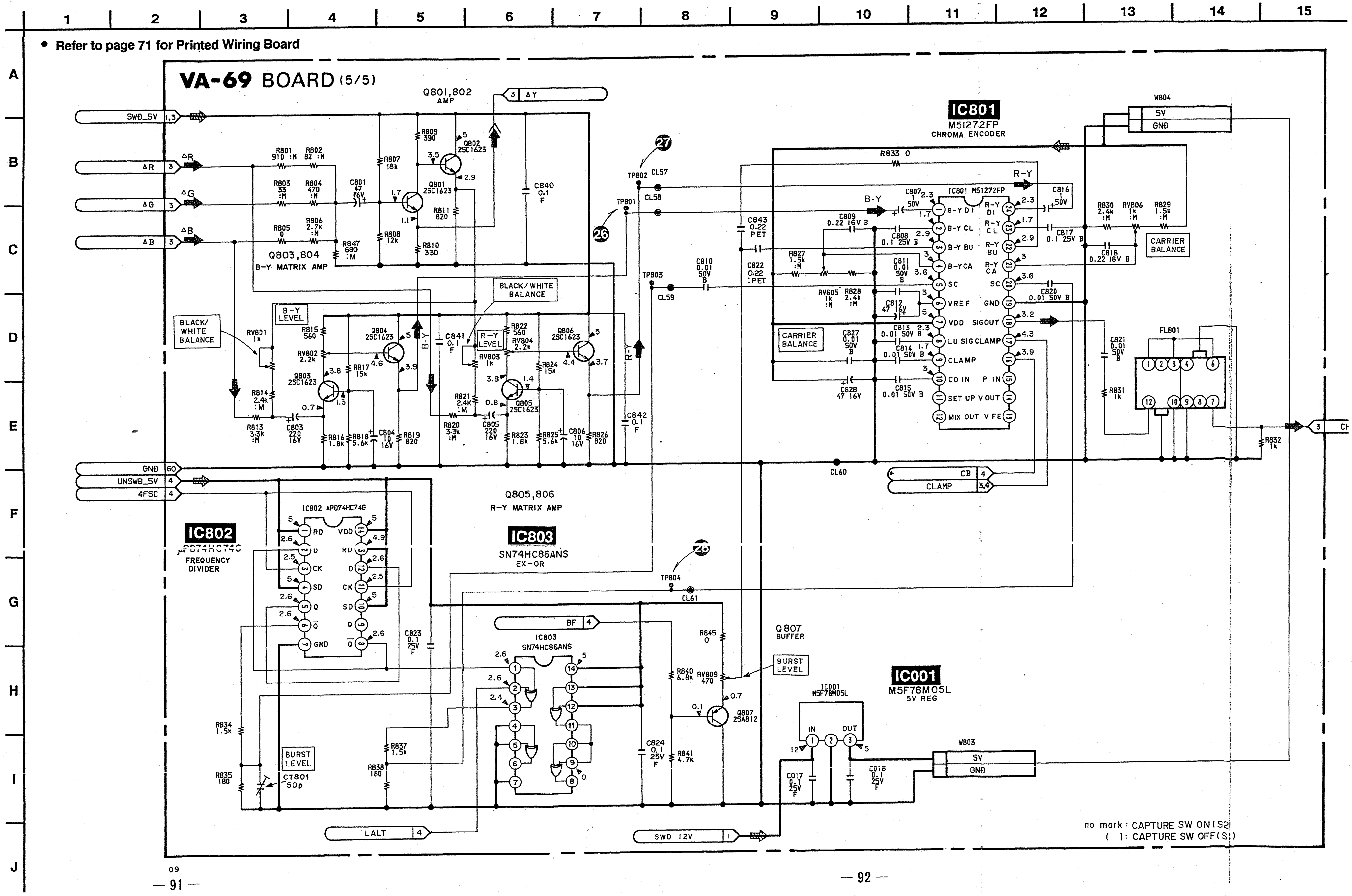
VIDEO (ANALOG)

VIDEO (ANALOG)

VA-69 (VIDEO (ANALOG)) SCHEMATIC DIAGRAM

— Ref. No. VA-69 BOARD: 1000 series —

- **Refer to page 71 for Printed Wiring Board**

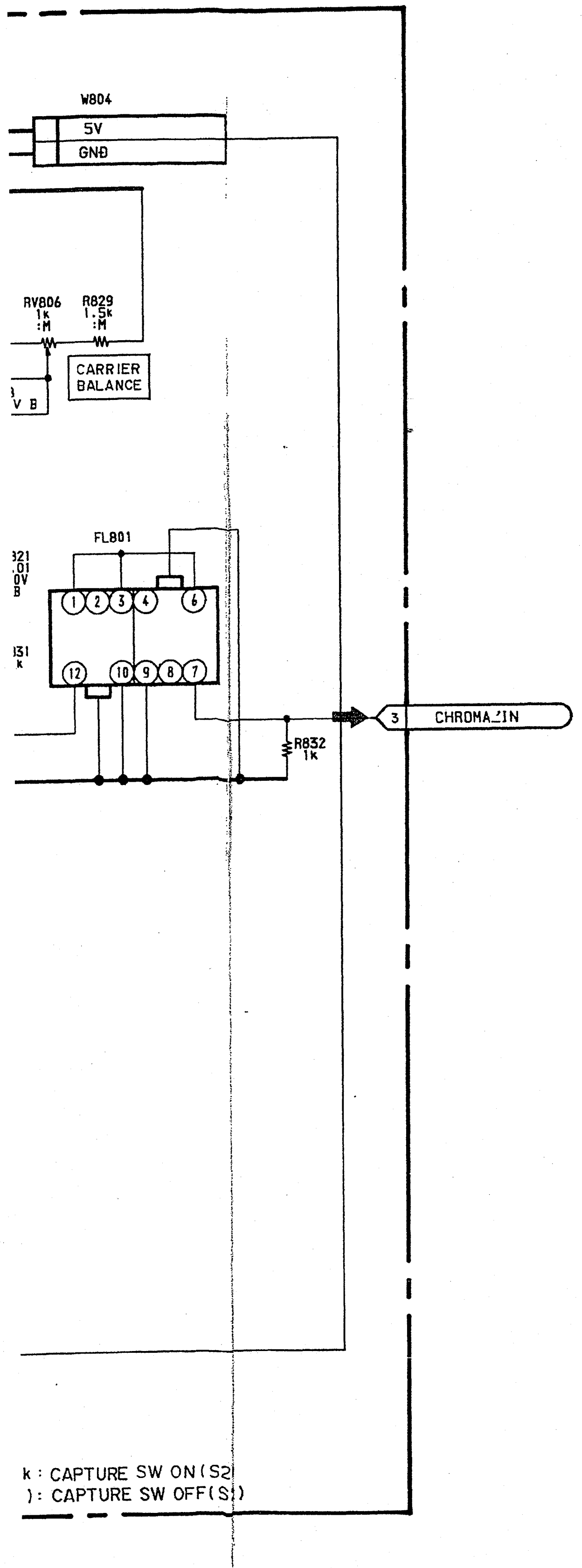


VA-69 BOARD (5/5)
Q801,802 AMP
Q803,804 B-Y MATRIX AMP
Q805,806 R-Y MATRIX AMP
Q807 BUFFER
IC801 M51272FP CHROMA ENCODER
IC802 μPD74HC74G FREQUENCY DIVIDER
IC803 SN74HC86ANS EX-OR
IC001 M5F78M05L 5V REG
SWD_5V
ΔR
ΔG
ΔB
GND
UNSWD_5V
4FSC
ΔY
CB
CLAMP
BF
LALT
SWD 12V
W804 5V GND
W803 5V GND
FL801
BLACK/WHITE BALANCE
B-Y LEVEL
R-Y LEVEL
CARRIER BALANCE
BURST LEVEL
B-Y
R-Y
TP801
TP802
TP803
TP804
CL57
CL58
CL59
CL60
CL61
B-Y DI
B-Y CL
B-Y BU
B-YCA
SC
VREF
VDD
LU SIG CLAMP
CLAMP
CO IN
SET UP V OUT
MIX OUT V FE
R-Y DI
R-Y CL
R-Y BU
R-Y CA
GND
SIGOUT
P IN
RD
VDD
D
CK
SD
Q
GND
IN
OUT
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J

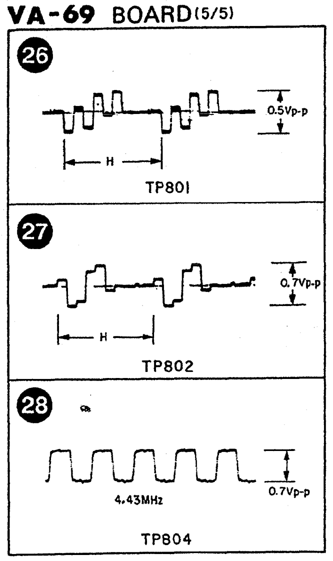
no mark : CAPTURE SW ON(S2

( ): CAPTURE SW OFF(S

13 14 15 16 17 18 19 20


W804
5V
GND
RV806
1k
:M
R829
1.5k
:M
CARRIER
BALANCE
V B
FL801
321
.01
0V
B
331
k
1 2 3 4 6
12 10 9 8 7
3
CHROMA_IN
R832
1k
k : CAPTURE SW ON (S2
) : CAPTURE SW OFF (S

VA-69 BOARD(5/5)


26
0.5Vp-p
H
TP801
27
0.7Vp-p
H
TP802
28
4.43MHz
0.7Vp-p
TP804

- **SIGNAL PATH (ANALOG)**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛	⋙	
PB				

MC-80 (VIDEO (DIGITAL)) PRINTED WIRING BOARD

— Ref. No. MC-80 BOARD: 2000 series —

Note:
- ○: Through hole

⟨ DIODE ⟩

D101	8-719-800-76	DIODE	1SS226
D201	8-719-800-76	DIODE	1SS226
D301	8-719-800-76	DIODE	1SS226
D501	8-719-800-76	DIODE	1SS226

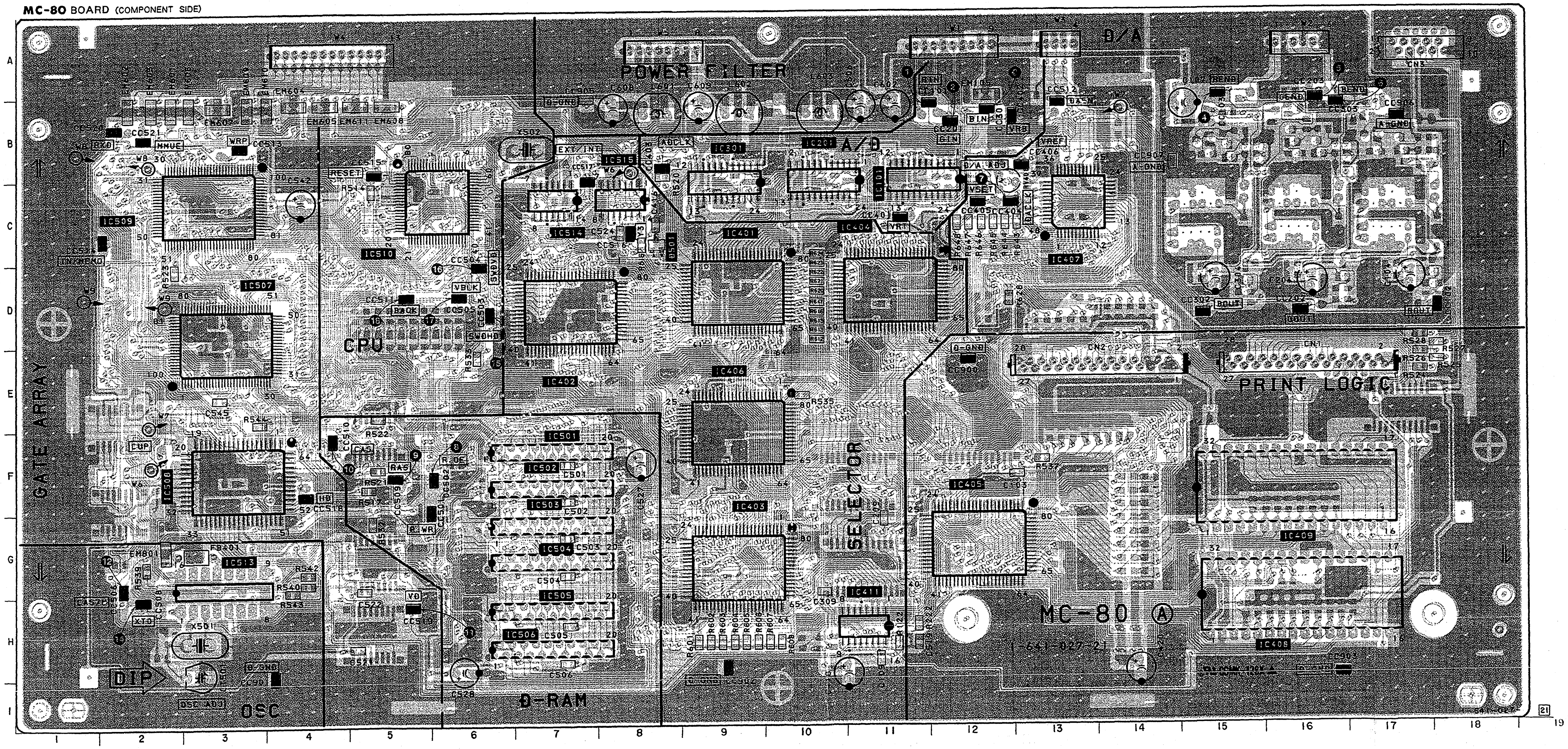
⟨ IC ⟩

IC101	8-752-334-55	IC	CXD1175AM
IC102	8-759-053-58	IC	IDT6116SA25S0
IC201	8-752-334-55	IC	CXD1175AM
IC202	8-759-053-58	IC	IDT6116SA25S0
IC301	8-752-334-55	IC	CXD1175AM
IC302	8-759-053-58	IC	IDT6116SA25S0
IC401	8-759-154-50	IC	CXD8301Q
IC402	8-759-154-50	IC	CXD8301Q
IC403	8-759-154-50	IC	CXD8301Q
IC404	8-759-154-50	IC	CXD8301Q
IC405	8-759-154-50	IC	CXD8301Q
IC406	8-759-154-50	IC	CXD8301Q
IC407	8-752-032-93	IC	CXA1260Q-Z
IC408	8-759-051-58	IC	uPD23C1001EC-573
IC409	8-759-051-59	IC	uPD23C1001EC-574
IC410	8-759-038-00	IC	MC74HC574AF
IC411	8-759-232-58	IC	TC74HC139AF
IC501	8-759-043-61	IC	HM514400AZ7
IC502	8-759-043-61	IC	HM514400AZ7
IC503	8-759-043-61	IC	HM514400AZ7
IC504	8-759-043-61	IC	HM514400AZ7
IC505	8-759-043-61	IC	HM514400AZ7
IC506	8-759-043-61	IC	HM514400AZ7
IC507	8-759-114-07	IC	uPD65013GF-407-3BA
IC508	8-759-114-09	IC	uPD65006GF-250-3B8
IC509	8-759-053-96	IC	CXD8328Q
IC510	8-759-069-24	IC	HD6435328RB40F
IC512	8-759-992-78	IC	74F257ASJ-T5L
IC513	8-759-140-94	IC	CXD1332P
IC514	8-759-948-01	IC	74F04SJ
IC515	8-759-989-03	IC	74F32SJ
IC516	8-759-053-60	IC	74F86SJ-L5
IC517	8-759-989-01	IC	74F08SJ

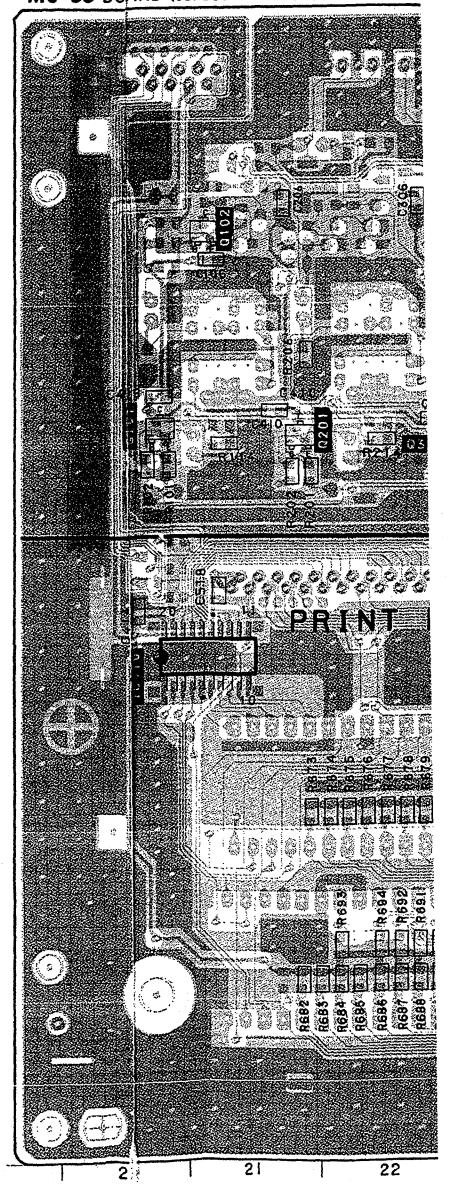
⟨

Q101	8-729-100-66	TF
Q201	8-729-100-66	TF
Q301	8-729-100-66	TF

MC-80 BOARD (COMPONENT SIDE)


POWER FILTER
A/D
D/A
CPU
GATE ARRAY
SELECTOR
PRINT LOGIC
D-RAM
OSC
DIP
MC-80 Ⓐ
1-641-027-21
IC101
IC201
IC301
IC401
IC402
IC403
IC404
IC405
IC406
IC407
IC408
IC409
IC411
IC501
IC502
IC503
IC504
IC505
IC506
IC507
IC509
IC510
IC513
IC514
IC515
IC516
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19

MC-80 BOARD (CONDUCTOR SIDE)

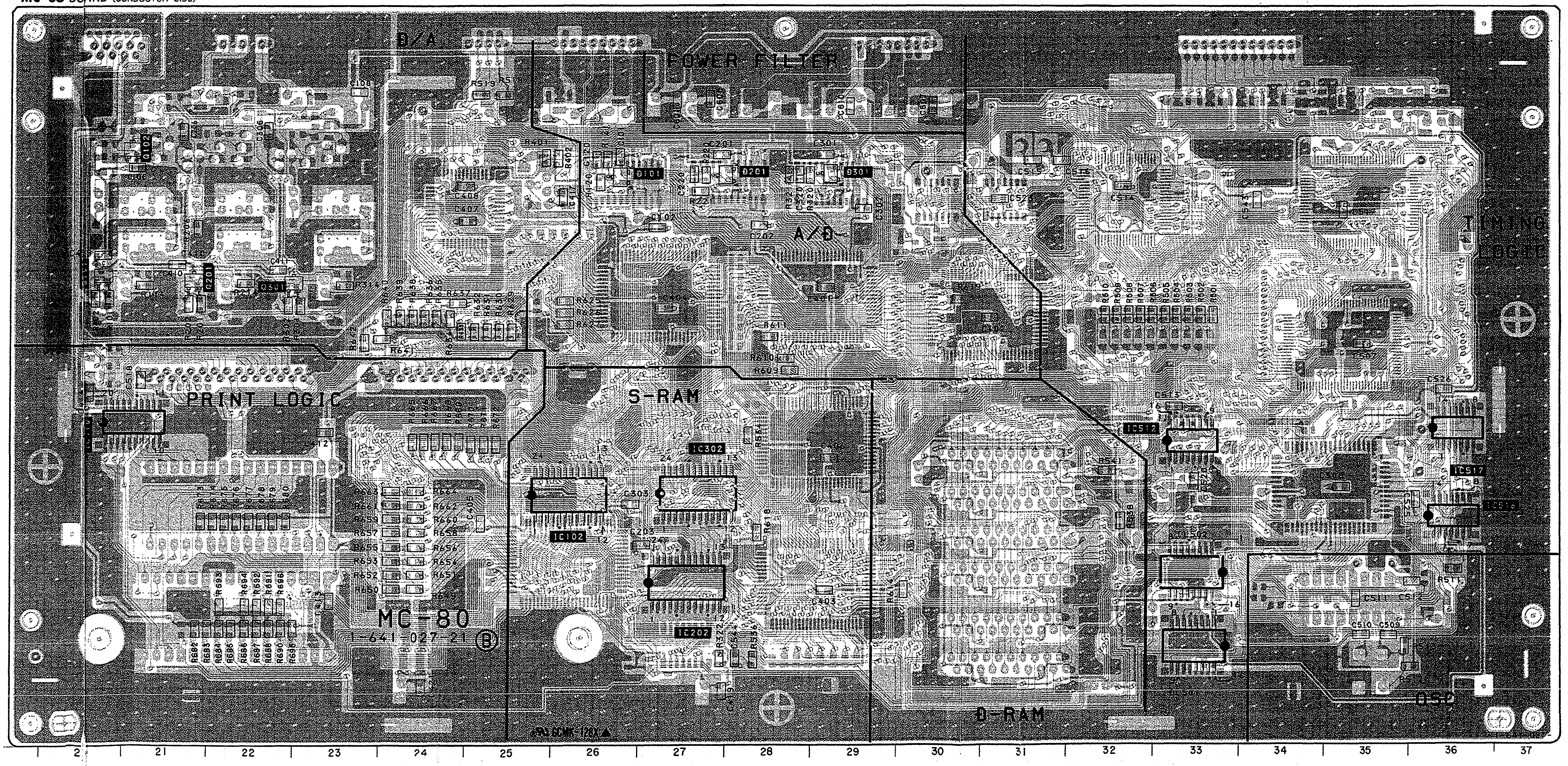

PRINT
2
21
22

-L5

〈 TRANSISTOR 〉

Q101	8-729-100-66	TRANSISTOR	2SC1623-L6
Q201	8-729-100-66	TRANSISTOR	2SC1623-L6
Q301	8-729-100-66	TRANSISTOR	2SC1623-L6

MC-80 BOARD (CONDUCTOR SIDE)


D/A
POWER FILTER
A/D
TIMING LOGIC
PRINT LOGIC
S-RAM
D-RAM
OSC
MC-80
1-641-027-21 Ⓑ
Q101
Q201
Q301
IC102
IC302
IC202
IC512
IC517
IC516
19
2
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37

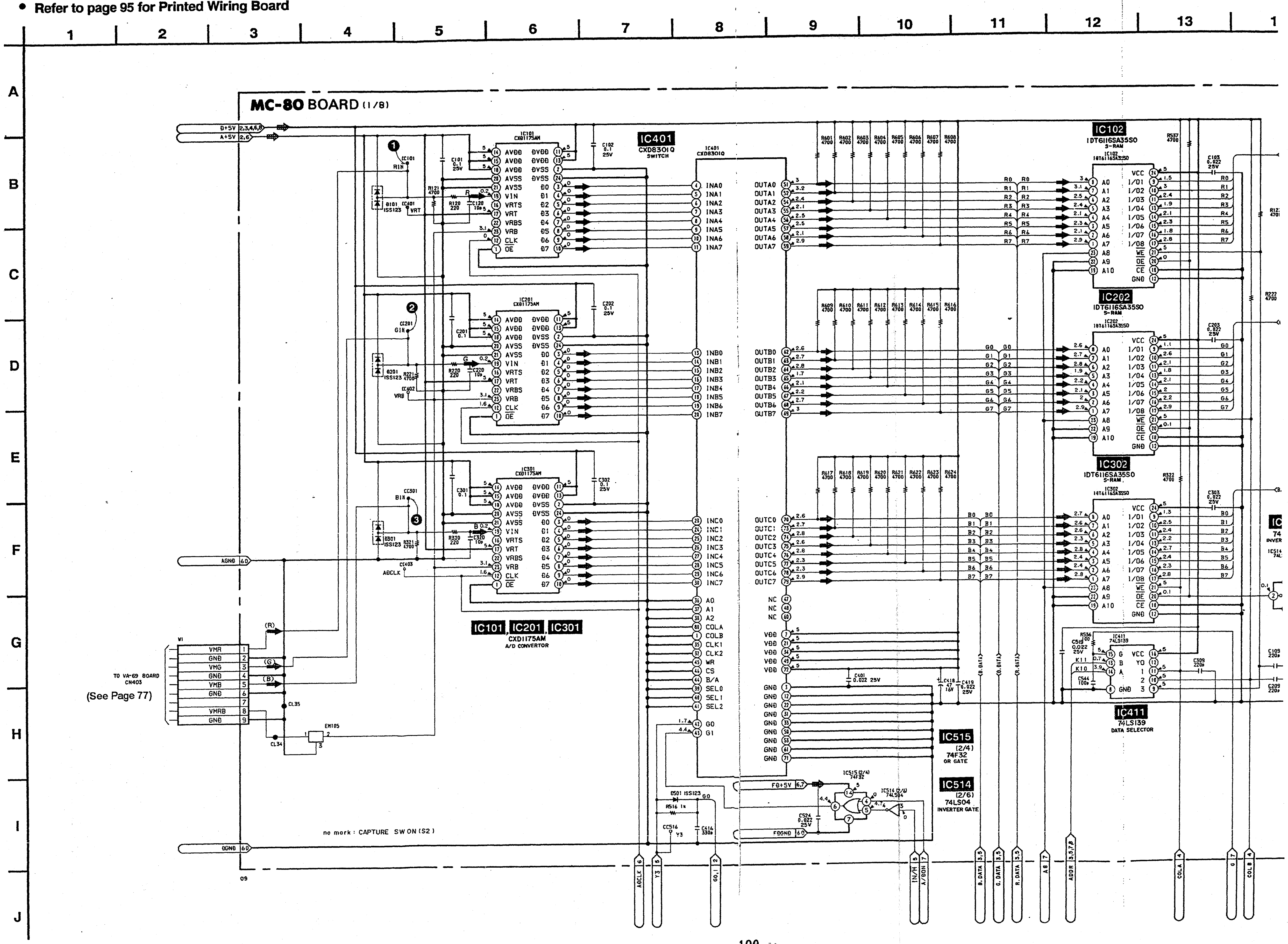
MC-80 BOARD

CC101	B-12
CC102	D-19
CC103	B-16
CC201	B-13
CC202	D-17
CC203	B-17
CC301	B-13
CC302	D-16
CC303	B-17
CC401	C-12
CC402	B-13
CC403	C-9
CC404	C-13
CC405	C-13
CC406	C-13
CC501	G-6
CC502	G-6
CC503	D-7
CC504	D-6
CC505	D-6
CC506	H-2
CC507	F-2
CC508	H-2
CC509	G-5
CC510	F-5
CC511	D-5
CC512	B-14
CC513	B-3
CC514	C-2
CC515	C-5
CC516	C-8
CC517	C-8
CC518	G-4
CC519	H-6
CC520	B-2
CC521	B-2
CC900	E-13
CC901	I-4
CC902	I-10
CC903	I-18
CC905	B-8
CC906	B-18
D101	C-28
D201	C-29
D301	C-30
D501	D-9
IC101	C-12
IC102	G-27
IC201	C-11
IC202	H-29
IC301	C-9
IC302	G-29
IC401	D-10
IC402	D-8
IC403	H-10
IC404	D-12
IC405	G-13
IC406	F-10
IC407	C-14
IC408	H-17
IC409	G-17
IC410	F-22
IC411	H-11
IC501	F-7
IC502	G-7
IC503	G-7
IC504	H-7
IC505	H-7
IC506	I-7
IC507	E-3
IC508	G-3
IC509	C-3
IC510	C-6
IC512	F-35
IC513	H-3
IC514	C-7
IC515	C-8
IC516	G-38
IC517	F-38
Q101	D-22
Q102	B-22
Q103	B-22
Q104	B-22
Q201	D-23
Q202	B-23
Q203	B-23
Q204	B-23
Q301	D-24
Q302	C-24
Q303	C-24
Q304	B-24

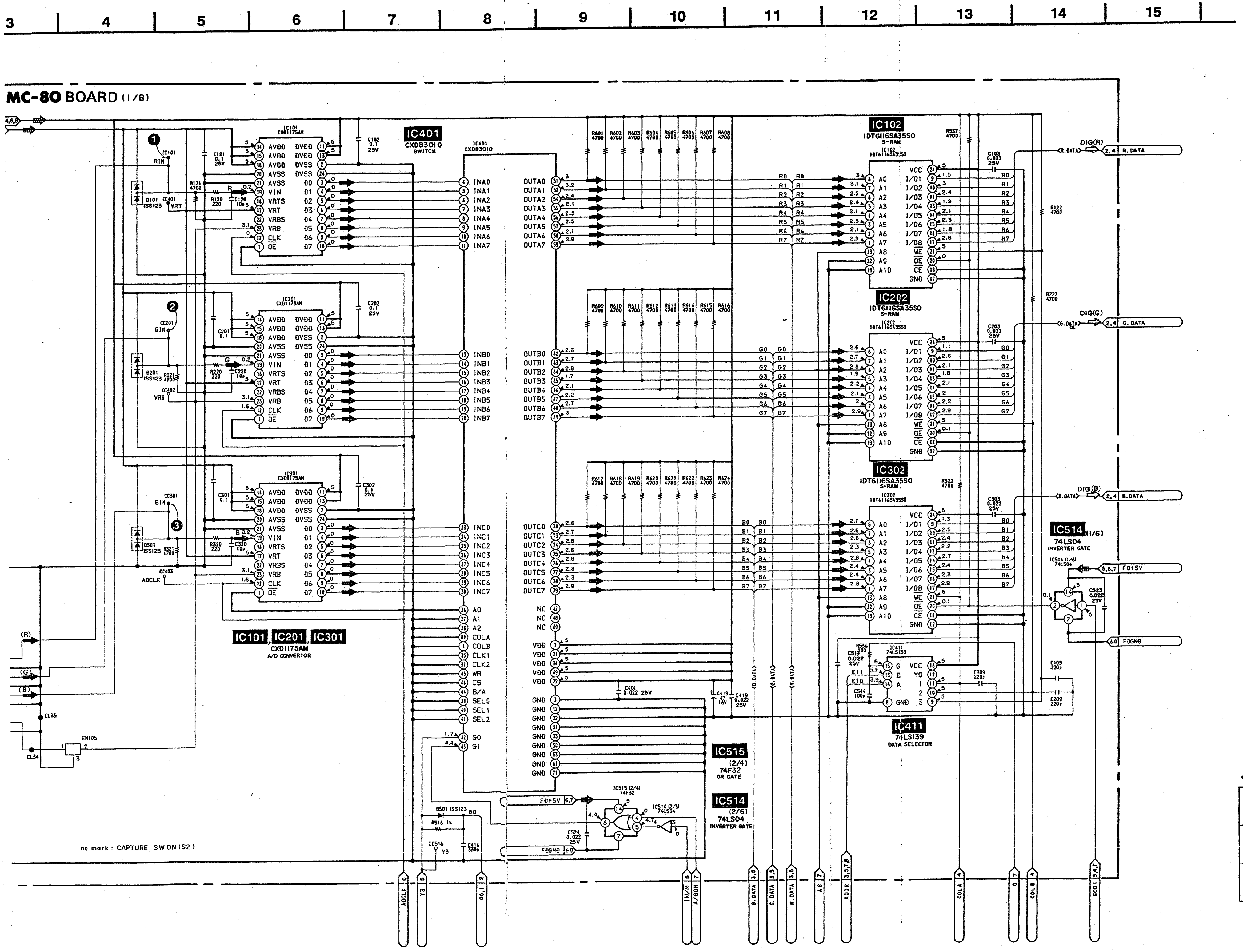
MC-80 (VIDEO (DIGITAL)) SCHEMATIC DIAGRAM

— Ref. No. MC-80 BOARD: 2000 series —

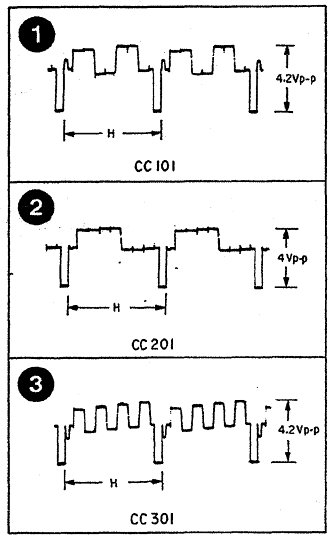
- Refer to page 95 for Printed Wiring Board


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J
MC-80 BOARD (1/8)
D+5V
A+5V
IC401
CXD8301Q
SWITCH
IC102
IDT6116SA35SO
S-RAM
IC202
IDT6116SA35SO
S-RAM
IC302
IDT6116SA35SO
S-RAM
IC101, IC201, IC301
CXD1175AM
A/D CONVERTOR
IC515
(2/4)
74F32
OR GATE
IC514
(2/6)
74LS04
INVERTER GATE
IC411
74LS139
DATA SELECTOR
TO VA-69 BOARD
CN403
(See Page 77)
VMR
GND
VMG
GND
VMB
GND
VMRB
GND
AGND
DGND
FD+5V
FDGND
no mark : CAPTURE SW ON (S2)
ADCLK
Y3
GO,1
IN/M
A/DON
B.DATA
G.DATA
R.DATA
A8
ADDR
COLA
COLB

Board


3
4
5
6
7
8
9
10
11
12
13
14
15
MC-80 BOARD (1/8)
IC401
CXD8301Q
SWITCH
IC102
IDT6116SA35SO
S-RAM
IC202
IDT6116SA35SO
S-RAM
IC302
IDT6116SA35SO
S-RAM
IC101, IC201, IC301
CXD1175AM
A/D CONVERTOR
IC514 (1/6)
74LS04
INVERTER GATE
IC411
74LS139
DATA SELECTOR
IC515 (2/4)
74F32
OR GATE
IC514 (2/6)
74LS04
INVERTER GATE
DIG(R)
R.DATA
DIG(G)
G.DATA
DIG(B)
B.DATA
F0+5V
F0GND
no mark : CAPTURE SW ON (S2)
ADCLK
Y3
G0,1
IN/H
A/DON
B.DATA
G.DATA
R.DATA
A8
ADDR
COLA
G
COLB
GOOI

MC-80 BOARD (1/8)



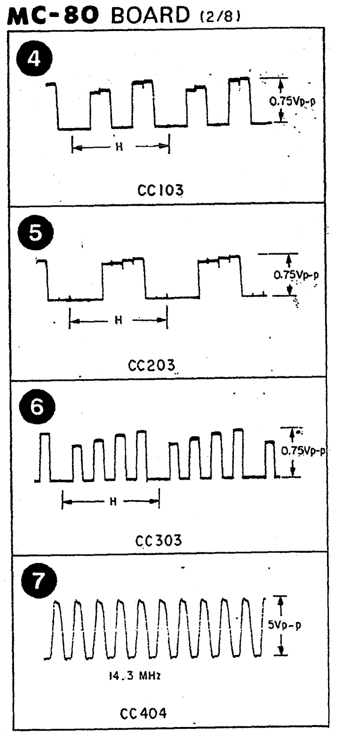
- **SIGNAL PATH (DIGITAL)**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
WRITE	⇒			
READ	⇨			

MC-80 (VIDEO (DIGITAL)) SCHEMATIC DIAGRAM

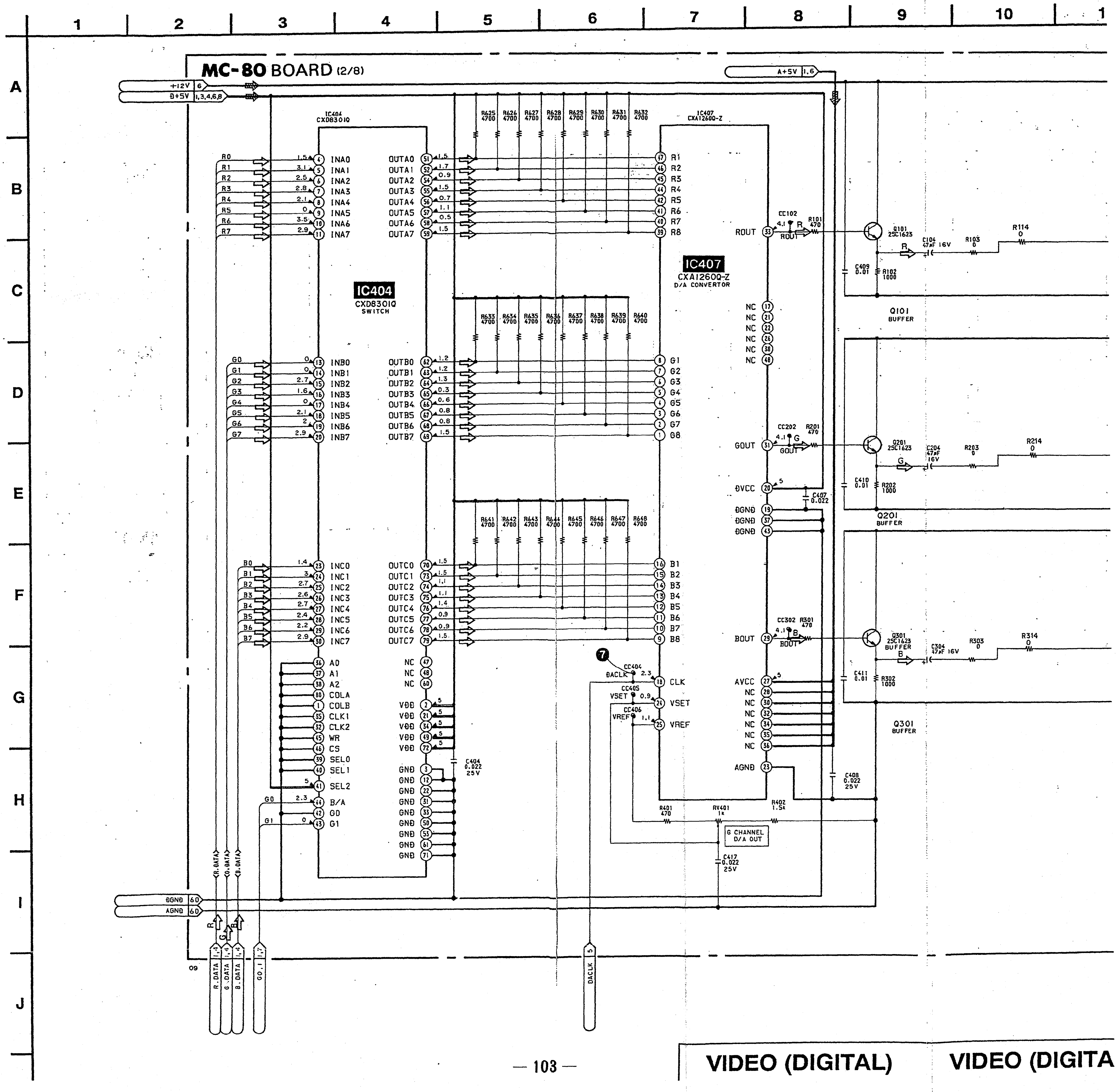
— Ref. No. MC-80 BOARD: 2000 series —

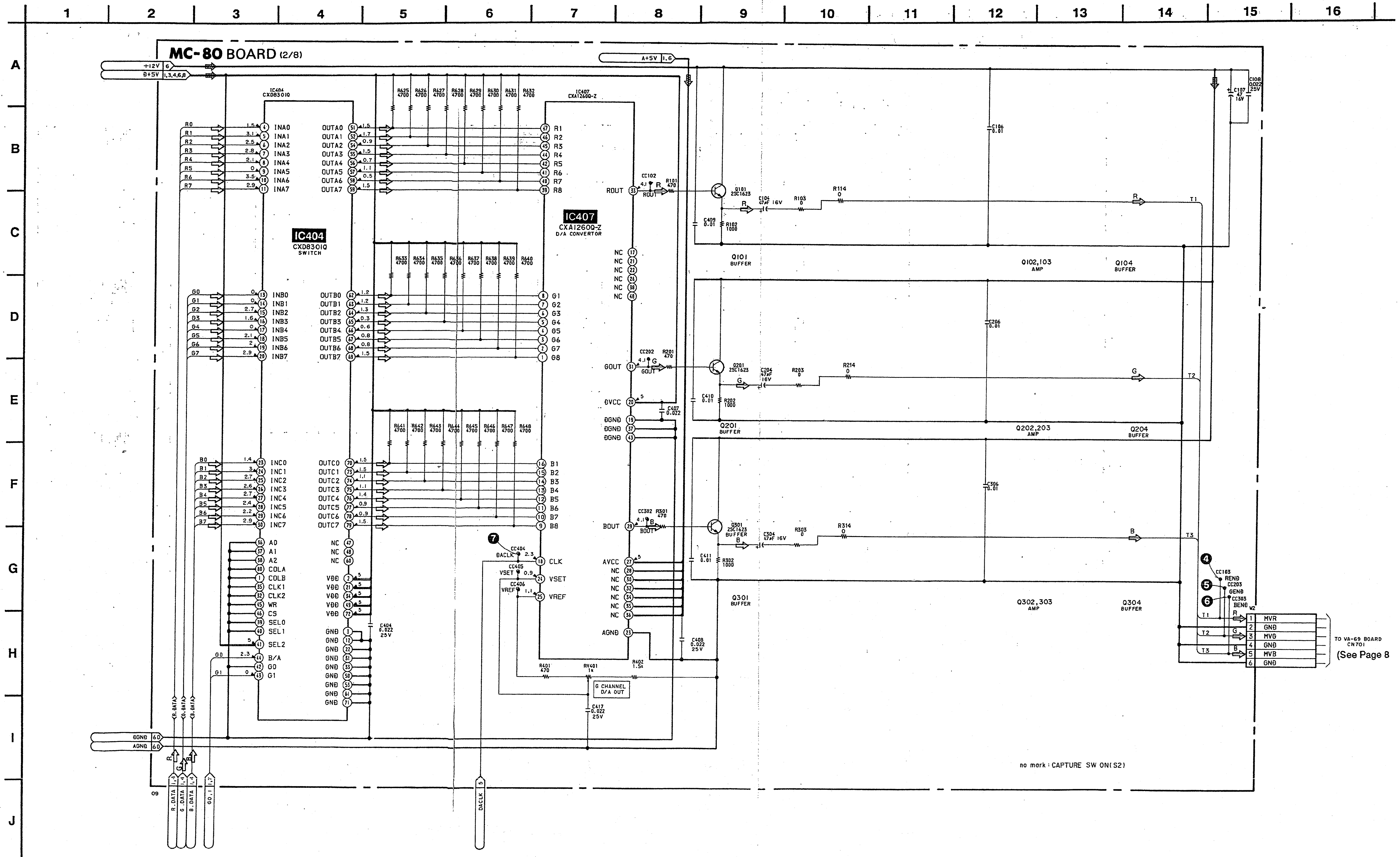
- **Refer to page 95 for Printed Wiring Board**



• **SIGNAL PATH (DIGITAL)**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
WRITE				
READ	⇨			


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
J
MC-80 BOARD (2/8)
+12V 6
B+5V 1,3,4,6,8
A+5V 1,6
IC404 CXD8301Q
IC404
CXD8301Q
SWITCH
IC407 CXA1260Q-Z
IC407
CXA1260Q-Z
D/A CONVERTOR
R0
R1
R2
R3
R4
R5
R6
R7
INA0
INA1
INA2
INA3
INA4
INA5
INA6
INA7
OUTA0
OUTA1
OUTA2
OUTA3
OUTA4
OUTA5
OUTA6
OUTA7
G0
G1
G2
G3
G4
G5
G6
G7
INB0
INB1
INB2
INB3
INB4
INB5
INB6
INB7
OUTB0
OUTB1
OUTB2
OUTB3
OUTB4
OUTB5
OUTB6
OUTB7
B0
B1
B2
B3
B4
B5
B6
B7
INC0
INC1
INC2
INC3
INC4
INC5
INC6
INC7
OUTC0
OUTC1
OUTC2
OUTC3
OUTC4
OUTC5
OUTC6
OUTC7
A0
A1
A2
COLA
COLB
CLK1
CLK2
WR
CS
SEL0
SEL1
SEL2
B/A
G0
G1
VDD
GND
NC
R8
G8
B8
ROUT
GOUT
BOUT
BVCC
BGND
AVCC
AGND
CLK
VSET
VREF
DACLK
CC404
CC405
CC406
CC102
CC202
CC302
R101 470
R201 470
R301 470
R102 1000
R202 1000
R302 1000
C409 0.01
C410 0.01
C411 0.01
C407 0.022
C404 0.022 25V
C408 0.022 25V
C417 0.022 25V
Q101 2SC1623
Q201 2SC1623
Q301 2SC1623 BUFFER
Q101 BUFFER
Q201 BUFFER
Q301 BUFFER
C104 47μF 16V
C204 47μF 16V
C304 47μF 16V
R103 0
R203 0
R303 0
R114 0
R214 0
R314 0
R401 470
RV401 1k
R402 1.5k
G CHANNEL D/A OUT
R625 4700
R626 4700
R627 4700
R628 4700
R629 4700
R630 4700
R631 4700
R632 4700
R633 4700
R634 4700
R635 4700
R636 4700
R637 4700
R638 4700
R639 4700
R640 4700
R641 4700
R642 4700
R643 4700
R644 4700
R645 4700
R646 4700
R647 4700
R648 4700
DGND 60
AGND 60
R.DATA
G.DATA
B.DATA
G0,1
DACLK 5
09

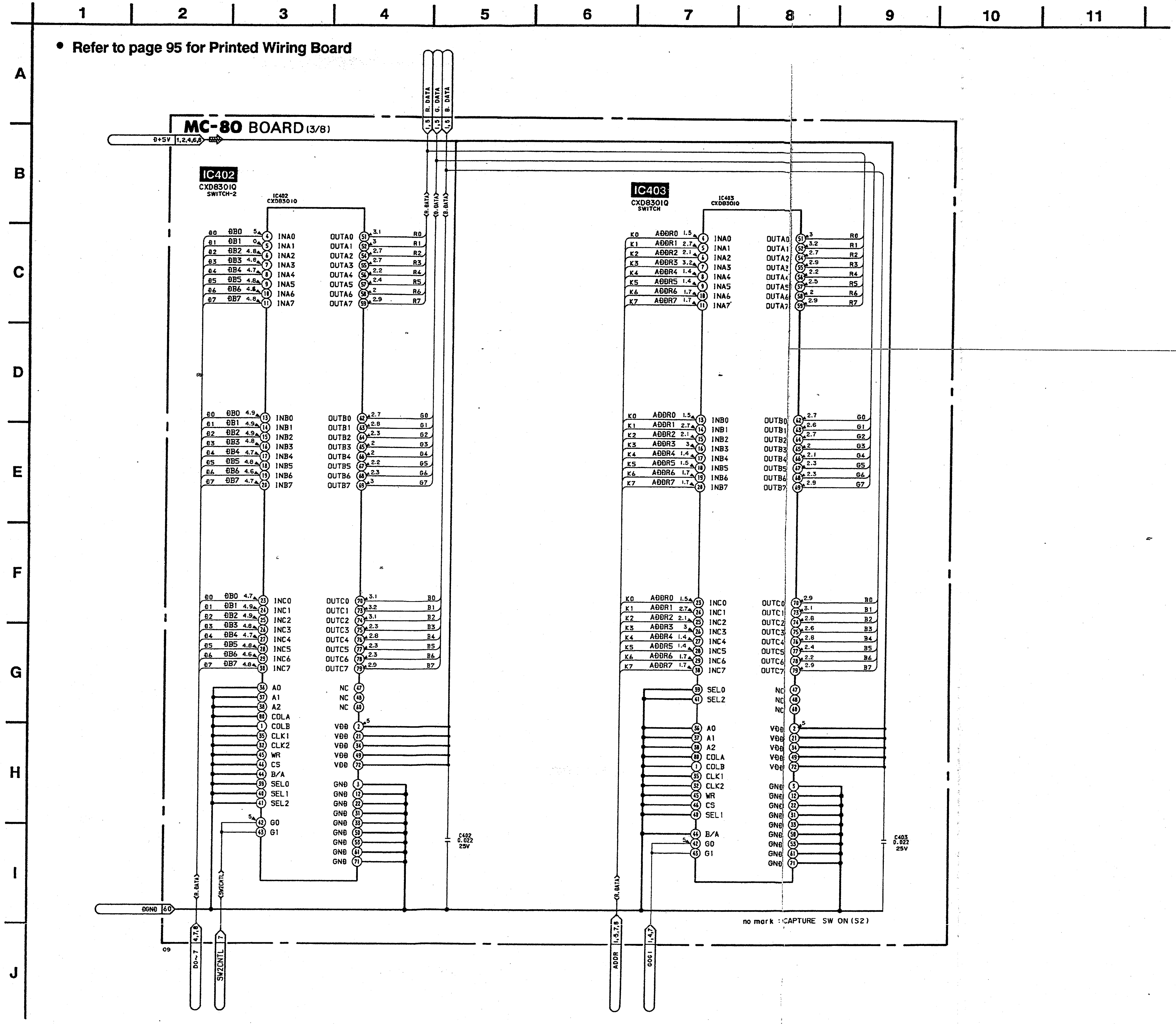

MC-80 BOARD (2/8)
IC404
CXD8301Q
SWITCH
IC407
CXA1260Q-Z
D/A CONVERTOR
+12V
B+5V
A+5V
DGND
AGND
ROUT
GOUT
BOUT
DVCC
AVCC
CLK
VSET
VREF
DACLK
Q101 BUFFER
Q102,103 AMP
Q104 BUFFER
Q201 BUFFER
Q202,203 AMP
Q204 BUFFER
Q301 BUFFER
Q302,303 AMP
Q304 BUFFER
G CHANNEL D/A OUT
MVR
MVG
MVB
GND
TO VA-69 BOARD CN701
(See Page 8
R.DATA
G.DATA
B.DATA
GO,1
no mark : CAPTURE SW ON(S2)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J

VIDEO (DIGITAL) **VIDEO (DIGITAL)**

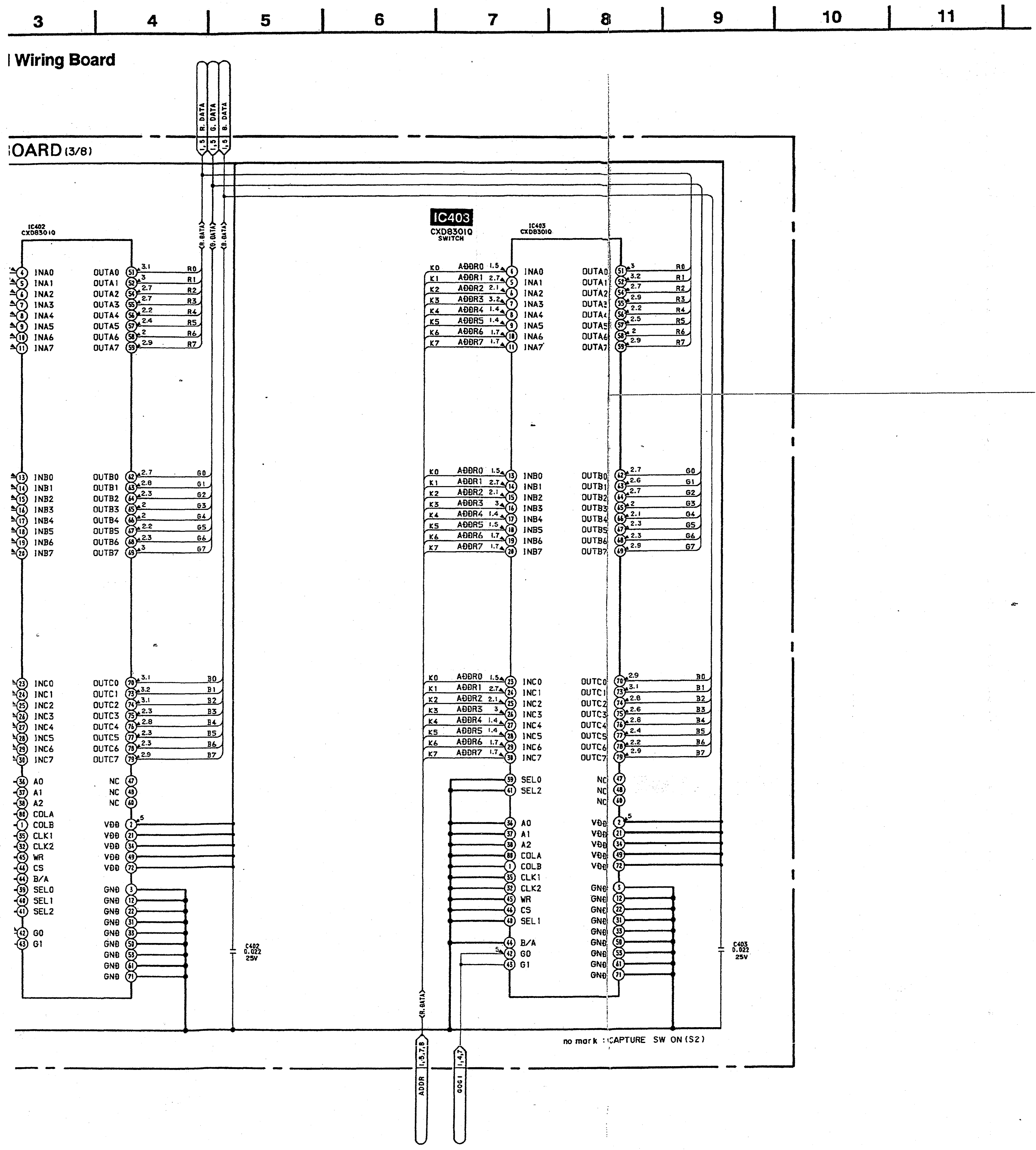
MC-80 (VIDEO (DIGITAL)) SCHEMATIC DIAGRAM

— Ref. No. MC-80 BOARD: 2000 series —

- Refer to page 95 for Printed Wiring Board


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
MC-80 BOARD (3/8)
B+5V
1,2,4,6,8
R. DATA
G. DATA
B. DATA
IC402
CXD8301Q
SWITCH-2
IC403
CXD8301Q
SWITCH
INA0
INA1
INA2
INA3
INA4
INA5
INA6
INA7
OUTA0
OUTA1
OUTA2
OUTA3
OUTA4
OUTA5
OUTA6
OUTA7
INB0
INB1
INB2
INB3
INB4
INB5
INB6
INB7
OUTB0
OUTB1
OUTB2
OUTB3
OUTB4
OUTB5
OUTB6
OUTB7
INC0
INC1
INC2
INC3
INC4
INC5
INC6
INC7
OUTC0
OUTC1
OUTC2
OUTC3
OUTC4
OUTC5
OUTC6
OUTC7
A0
A1
A2
COLA
COLB
CLK1
CLK2
WR
CS
B/A
SEL0
SEL1
SEL2
G0
G1
NC
VDD
GND
C402
0.022
25V
C403
0.022
25V
DGND
D0~7
SW2CNTL
ADDR
GOG1
no mark : CAPTURE SW ON (S2)

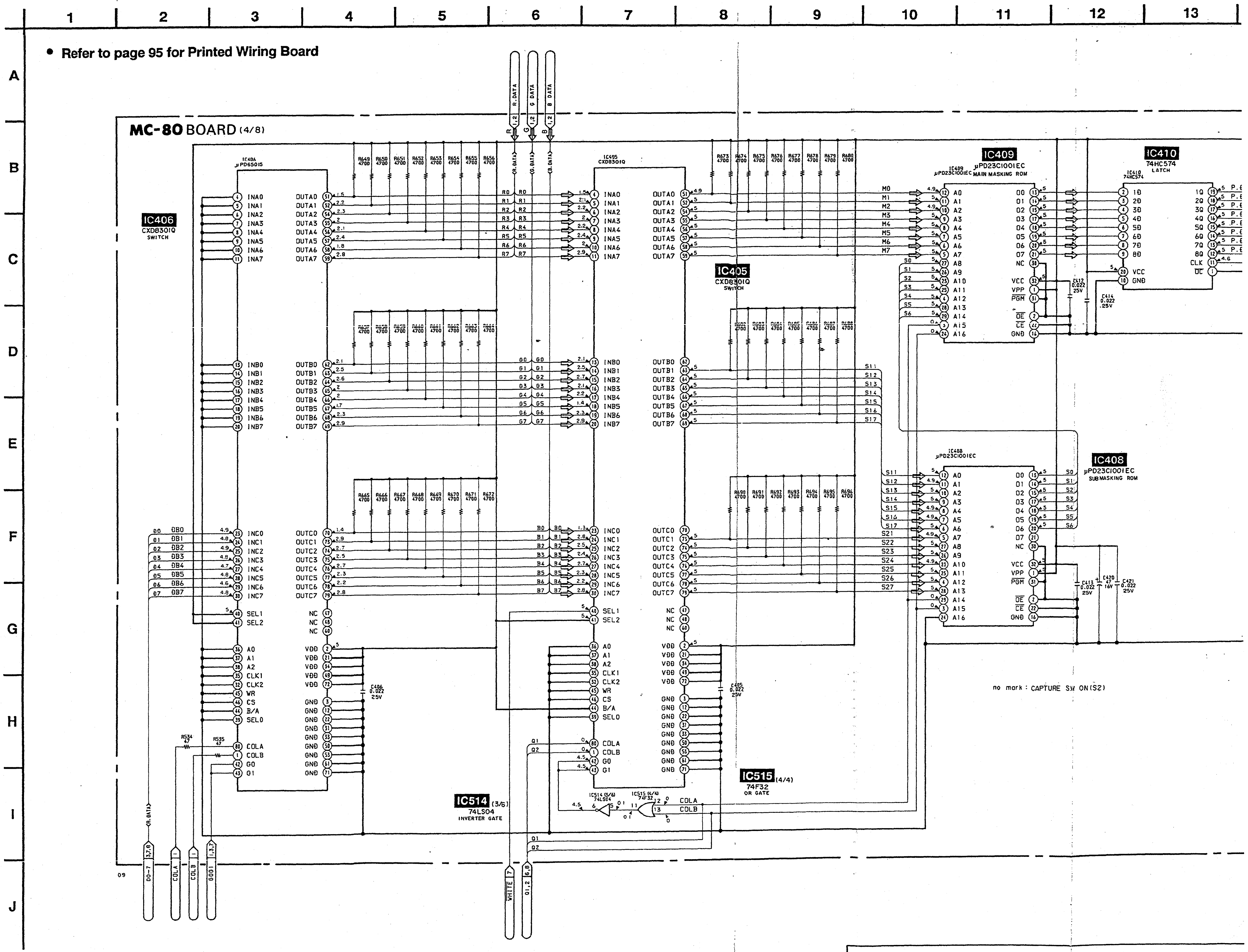
Wiring Board


3
4
5
6
7
8
9
10
11
OARD (3/8)
R. DATA
G. DATA
B. DATA
IC402
CXD8301Q
IC403
CXD8301Q
SWITCH
C402
0.022
25V
C403
0.022
25V
no mark : CAPTURE SW ON (S2)
ADDR
GOG1

MC-80 (VIDEO (DIGITAL)) SCHEMATIC DIAGRAM

— Ref. No. MC-80 BOARD: 2000 series —

- **Refer to page 95 for Printed Wiring Board**

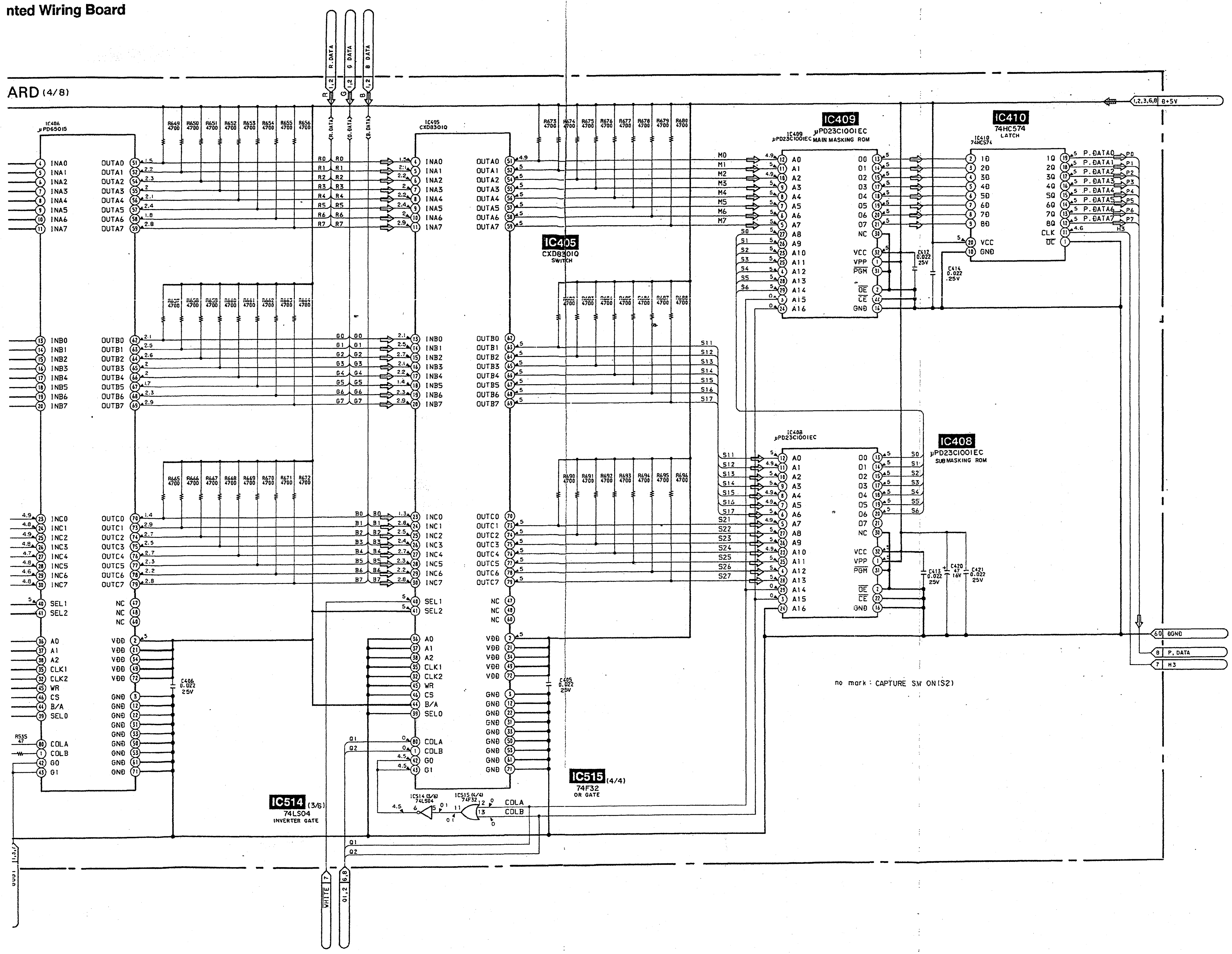

MC-80 BOARD (4/8)
IC406
CXD8301Q
SWITCH
IC404 µPD65015
IC405
CXD8301Q
SWITCH
IC409
µPD23C1001EC
MAIN MASKING ROM
IC410
74HC574
LATCH
IC408
µPD23C1001EC
SUB MASKING ROM
IC514 (3/6)
74LS04
INVERTER GATE
IC515 (4/4)
74F32
OR GATE
R.DATA
G DATA
B DATA
WRITE
COLA
COLB
no mark : CAPTURE SW ON (S2)

- **SIGNAL PATH (DIGITAL)**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
WRITE				
READ	⇨			

3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19

nted Wiring Board

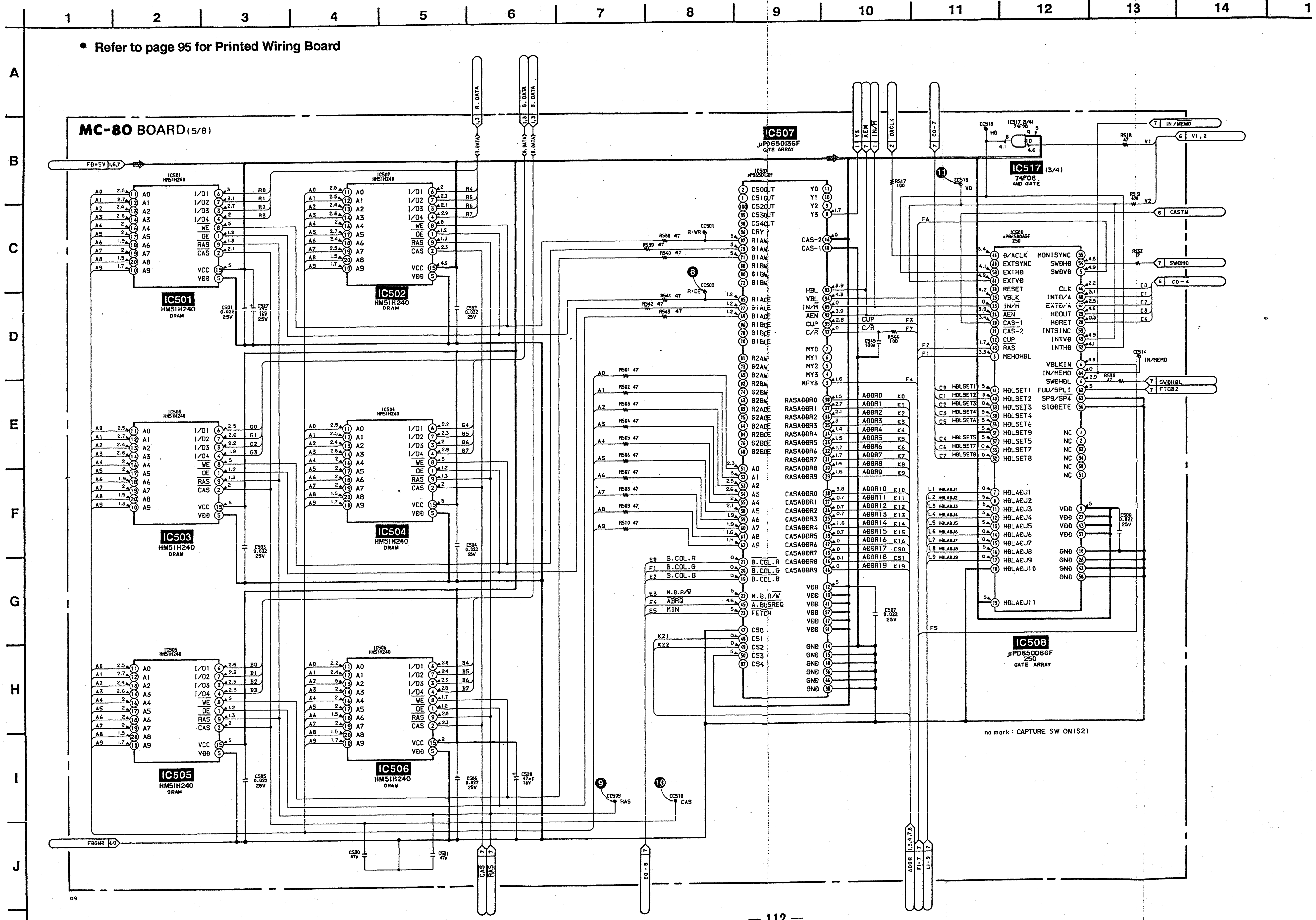


ARD (4/8)
R.DATA
G.DATA
B.DATA
1,2,3,6,8 B+5V
IC404 μPD65015
IC405 CXD8301Q SWITCH
IC409 μPD23C1001EC MAIN MASKING ROM
IC410 74HC574 LATCH
IC408 μPD23C1001EC SUB MASKING ROM
IC515 (4/4) 74F32 OR GATE
IC514 (3/6) 74LS04 INVERTER GATE
60 DGND
8 P.DATA
7 H3
WHITE
Q1,2 6,8
no mark : CAPTURE SW ON(S2)

C-80 (VIDEO (DIGITAL)) SCHEMATIC DIAGRAM

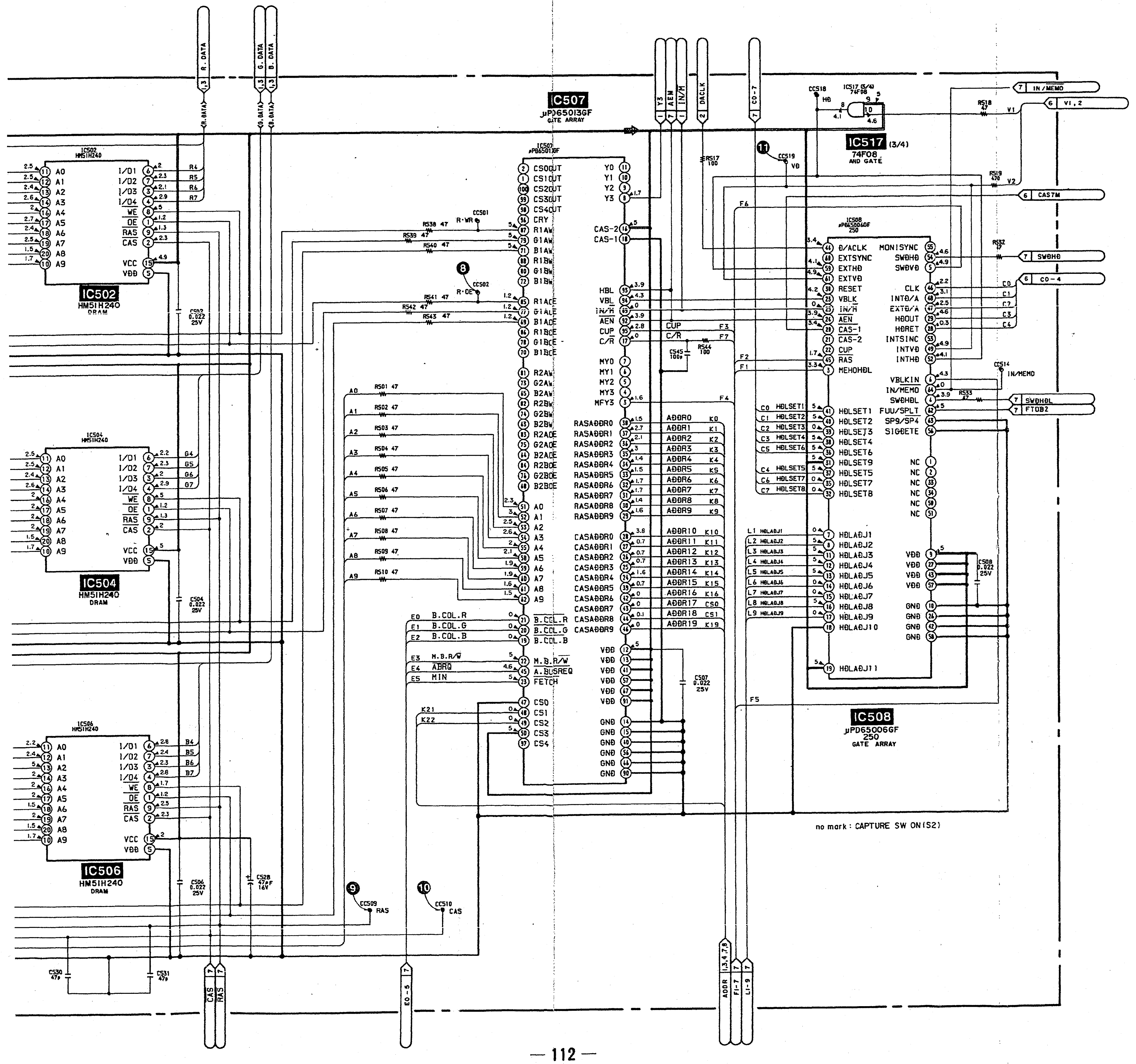
Ref. No. MC-80 BOARD: 2000 series —

- Refer to page 95 for Printed Wiring Board

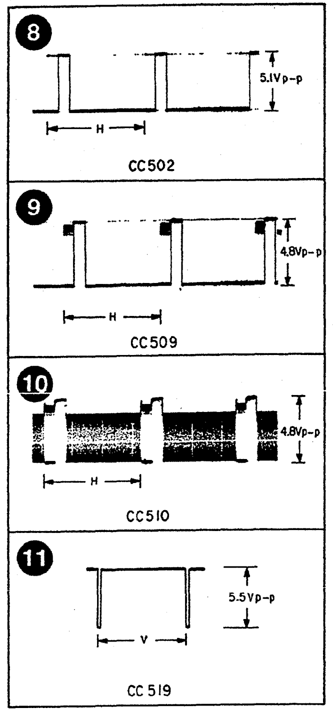

MC-80 BOARD (5/8)
IC501 HM51H240 DRAM
IC502 HM51H240 DRAM
IC503 HM51H240 DRAM
IC504 HM51H240 DRAM
IC505 HM51H240 DRAM
IC506 HM51H240 DRAM
IC507 μPD65013GF GATE ARRAY
IC508 μPD65006GF 250 GATE ARRAY
IC517 (3/4) 74F08 AND GATE
F0+5V
F0GND
R.DATA
G.DATA
B.DATA
CAS
RAS
E0-5
ADDR
FI-7
LI-9
Y3
AEW
IN/H
DACLK
C0-7
IN/MEMO
VI, 2
CAS7M
SWBH0
C0-4
SWBH0L
FT0B2
CC509 RAS
CC510 CAS
no mark : CAPTURE SW ON (S2)
09

4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

oard

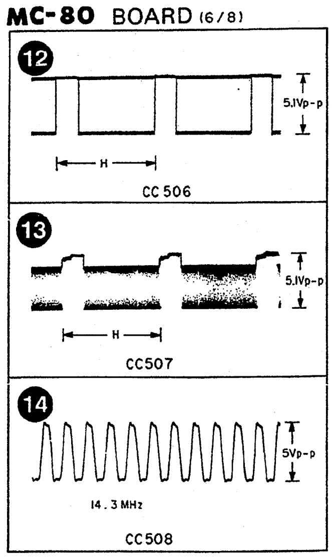

IC502
HM51H240
DRAM
IC504
HM51H240
DRAM
IC506
HM51H240
DRAM
IC507
μPD65013GF
GATE ARRAY
IC508
μPD65006GF
250
GATE ARRAY
IC517 (3/4)
74F08
AND GATE
R. DATA
G. DATA
B. DATA
Y3
AEM
IN/H
DACLK
C0-7
IN/MEMO
V1,2
CAS7M
SWBHB
C0-4
SWBHDL
FTOB2
CAS
RAS
E0-5
ADDR
F1-7
L1-9
CC509 RAS
CC510 CAS
CC519 VD
CC518 HD
no mark : CAPTURE SW ON (S2)

MC-80 BOARD (5/8)

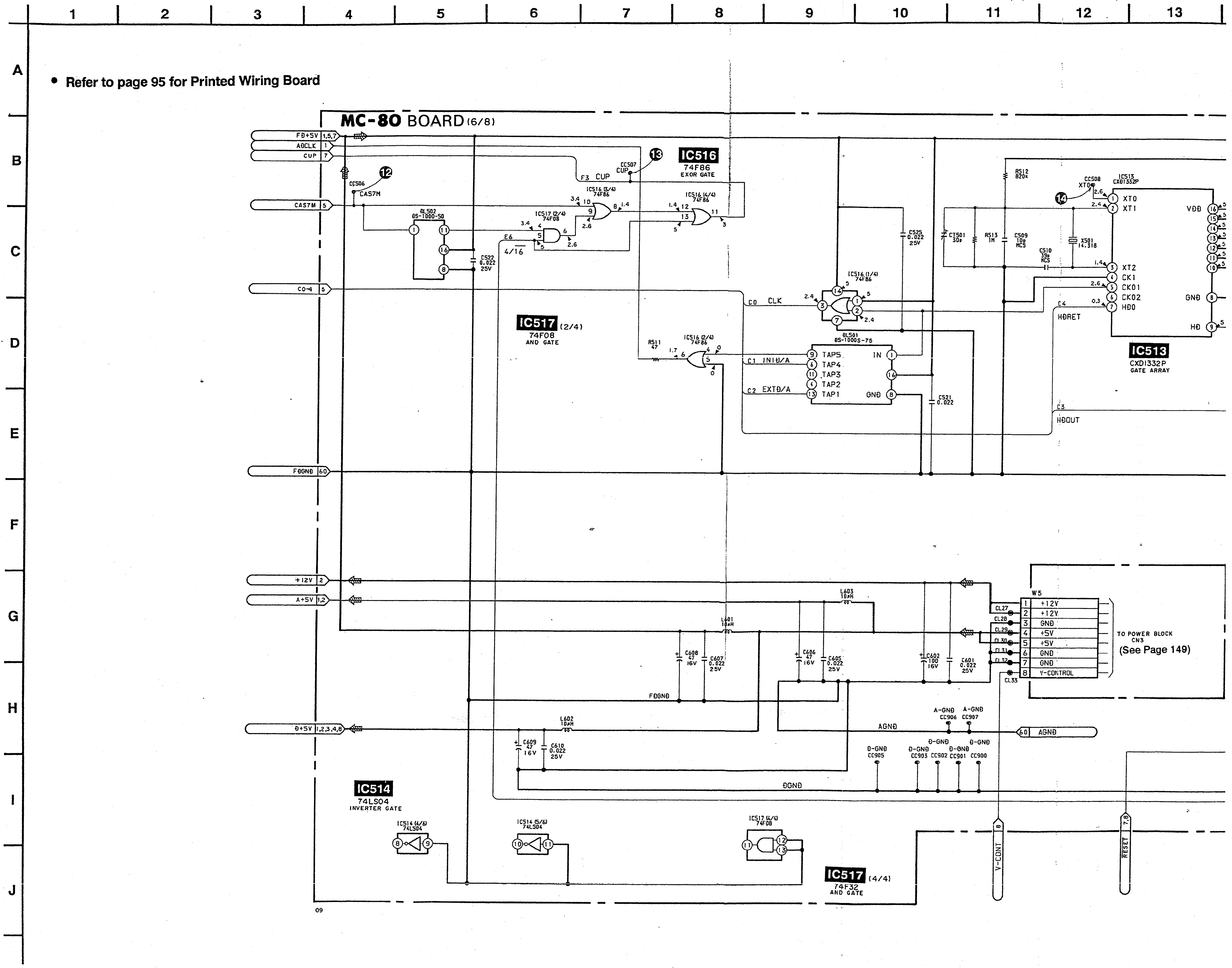


MC-80 (VIDEO (DIGITAL)) SCHEMATIC DIAGRAM

— Ref. No. MC-80 BOARD: 2000 series —

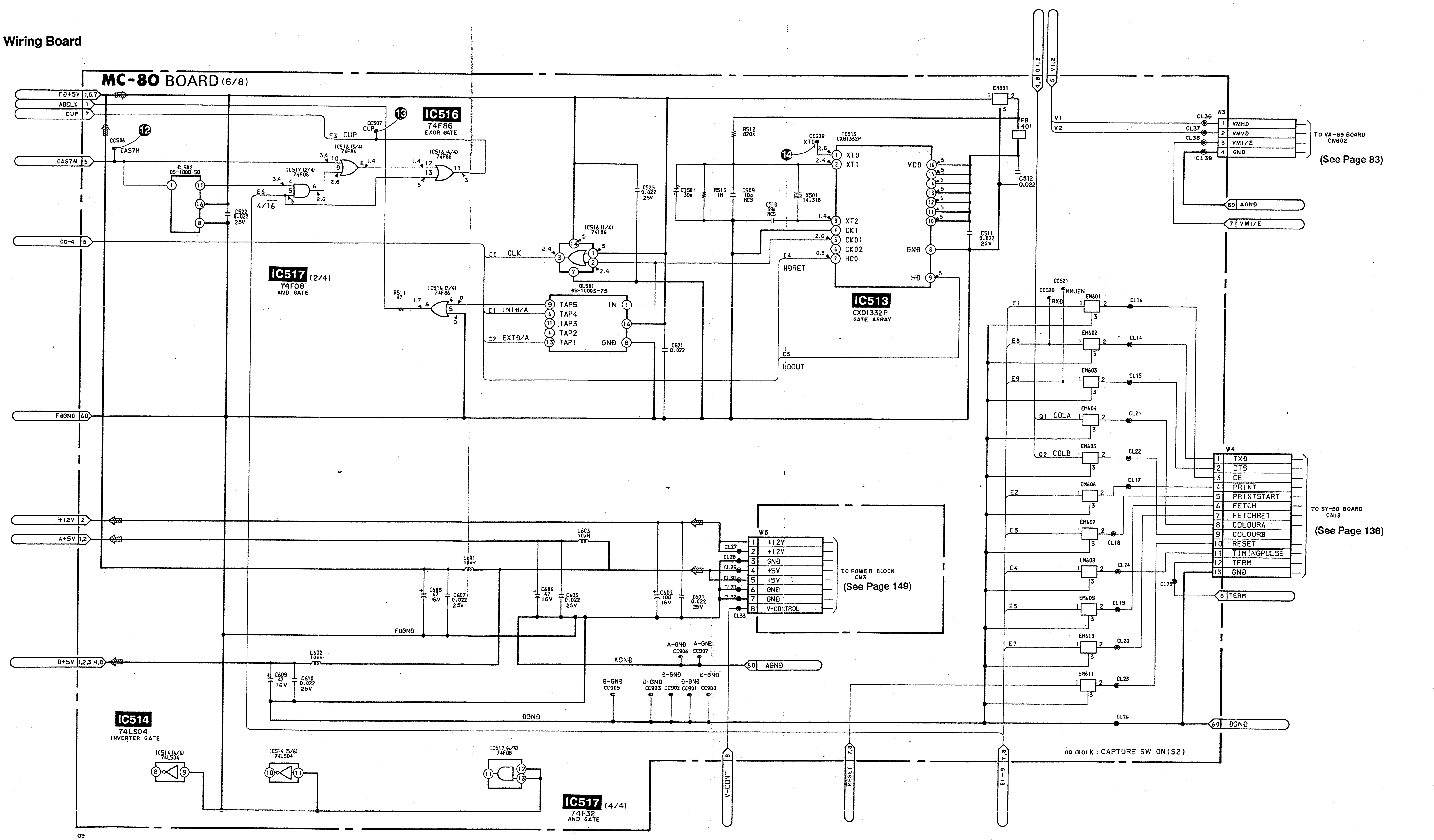


- Refer to page 95 for Printed Wiring Board


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J
MC-80 BOARD (6/8)
FD+5V 1,5,7
ADCLK 1
CUP 7
CAS7M 5
CO-4 5
FDGND 60
+12V 2
A+5V 1,2
D+5V 1,2,3,4,8
CC506
CAS7M
⑫
DL502
DS-1000-50
C522
0.022
25V
IC517 (2/4)
74F08
E6
4/16
F3 CUP
CC507
CUP
⑬
IC516
74F86
EXOR GATE
IC516 (3/4)
74F86
IC516 (4/4)
74F86
IC517 (2/4)
74F08
AND GATE
R511
47
IC516 (2/4)
74F86
C0 CLK
C1 INIT/A
C2 EXTD/A
IC516 (1/4)
74F86
DL501
DS-1000S-75
TAP5
TAP4
TAP3
TAP2
TAP1
IN
GND
C525
0.022
25V
C521
0.022
CT501
30p
R512
820k
R513
1M
C509
10p
MCS
C510
39p
MCS
X501
14.318
CC508
XTO
⑭
IC513
CXD1332P
XT0
XT1
XT2
CK1
CK01
CK02
HD0
VDD
GND
HD
C4
HDRET
C3
HDOUT
IC513
CXD1332P
GATE ARRAY
L603
10µH
L601
10µH
C608
47
16V
C607
0.022
25V
C606
47
16V
C605
0.022
25V
C602
100
16V
C601
0.022
25V
FDGND
W5
CL27
CL28
CL29
CL30
CL31
CL32
CL33
1 +12V
2 +12V
3 GND
4 +5V
5 +5V
6 GND
7 GND
8 V-CONTROL
TO POWER BLOCK
CN3
(See Page 149)
L602
10µH
C609
47
16V
C610
0.022
25V
AGND
A-GND
CC906
A-GND
CC907
60 AGND
D-GND
CC905
D-GND
CC903
D-GND
CC902
D-GND
CC901
D-GND
CC900
DGND
IC514
74LS04
INVERTER GATE
IC514 (4/6)
74LS04
IC514 (5/6)
74LS04
IC517 (4/4)
74F08
IC517 (4/4)
74F32
AND GATE
V-CONT 8
RESET 7,8
09

3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

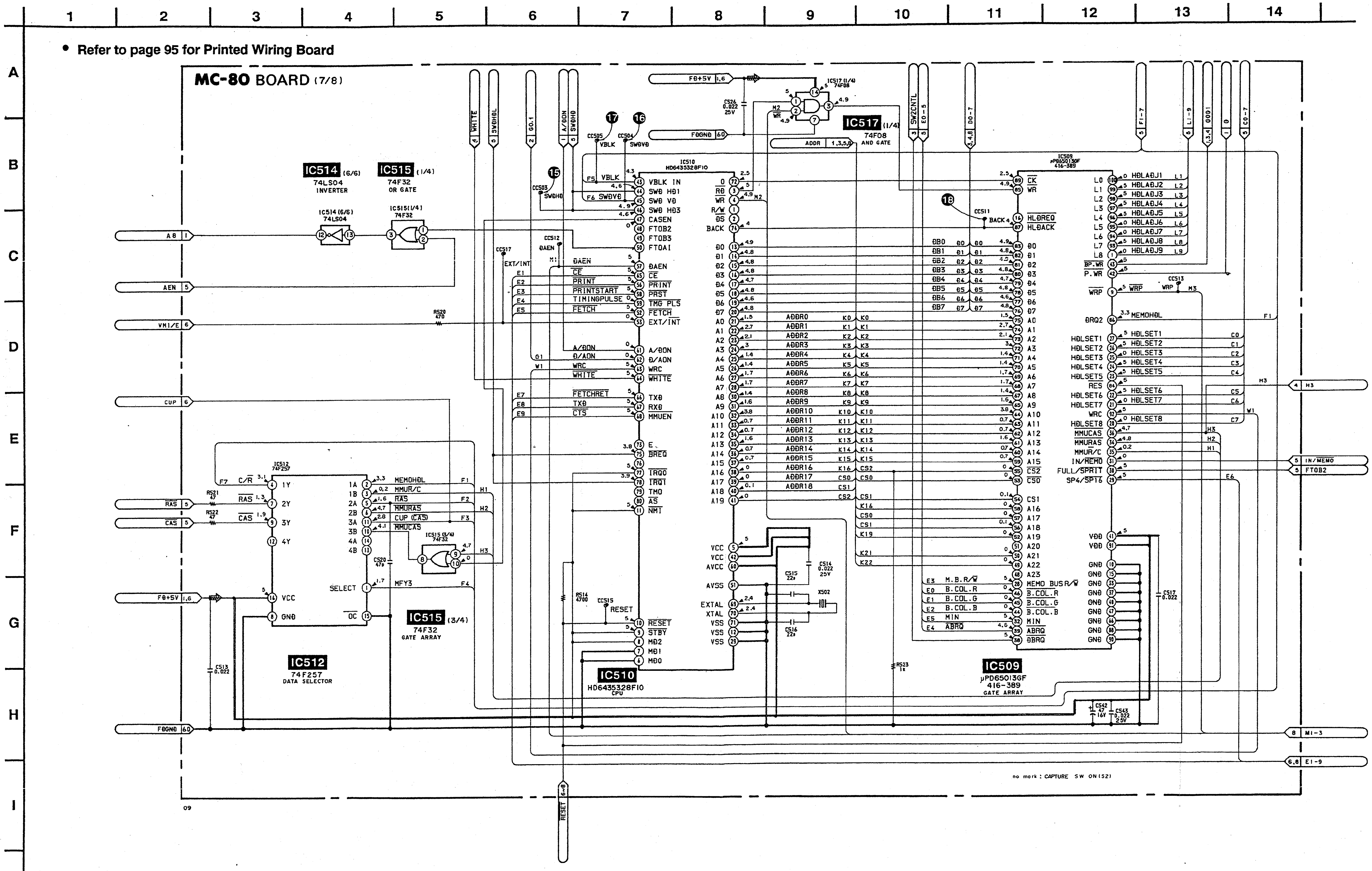
Printed Wiring Board

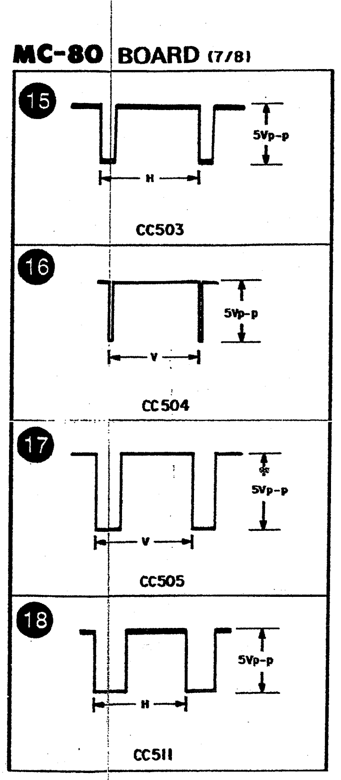

MC-80 BOARD (6/8)
FD+5V 1,5,7
ADCLK 1
CUP 7
CAS7M 5
CO-4 5
FDGND 60
+12V 2
A+5V 1,2
D+5V 1,2,3,4,8
CC506 CAS7M
⑫
⑬
⑭
CC507 CUP
F3 CUP
IC516
74F86
EXOR GATE
IC516 (3/4) 74F86
IC516 (4/4) 74F86
IC517 (2/4) 74F08
DL502 DS-1000-50
C522 0.022 25V
E6
4/16
IC517 (2/4)
74F08
AND GATE
R511 47
IC516 (2/4) 74F86
C0 CLK
C1 INID/A
C2 EXTD/A
IC516 (1/4) 74F86
DL501 DS-1000S-75
TAP5
TAP4
TAP3
TAP2
TAP1
IN
GND
C525 0.022 25V
C521 0.022
CT501 30p
R513 1M
C509 10p MCS
C510 39p MCS
R512 820k
CC508 XT0
X501 14.318
IC513 CXD1332P
XT0
XT1
XT2
CK1
CK01
CK02
HD0
VDD
GND
HD
C4 HDRET
C3 HDOUT
IC513
CXD1332P
GATE ARRAY
EM801
FB 401
C512 0.022
C511 0.022 25V
4,8 Q1,2
5 V1,2
V1
V2
W3
CL36
CL37
CL38
CL39
1 VMHD
2 VMVD
3 VMI/E
4 GND
TO VA-69 BOARD CN602
(See Page 83)
60 AGND
7 VMI/E
CC520 RXD
CC521 MMUEN
E1
E8
E9
Q1 COLA
Q2 COLB
E2
E3
E4
E5
E7
EM601
EM602
EM603
EM604
EM605
EM606
EM607
EM608
EM609
EM610
EM611
CL16
CL14
CL15
CL21
CL22
CL17
CL18
CL24
CL19
CL20
CL23
CL25
CL26
W4
1 TXD
2 CTS
3 CE
4 PRINT
5 PRINTSTART
6 FETCH
7 FETCHRET
8 COLOURA
9 COLOURB
10 RESET
11 TIMINGPULSE
12 TERM
13 GND
TO SY-50 BOARD CN18
(See Page 136)
8 TERM
60 DGND
L603 10μH
L601 10μH
L602 10μH
C608 47 16V
C607 0.022 25V
C606 47 16V
C605 0.022 25V
C602 100 16V
C601 0.022 25V
C609 47 16V
C610 0.022 25V
FDGND
AGND
DGND
W5
CL27
CL28
CL29
CL30
CL31
CL32
CL33
1 +12V
2 +12V
3 GND
4 +5V
5 +5V
6 GND
7 GND
8 V-CONTROL
TO POWER BLOCK CN3
(See Page 149)
A-GND CC906
A-GND CC907
D-GND CC905
D-GND CC903
D-GND CC902
D-GND CC901
D-GND CC900
IC514
74LS04
INVERTER GATE
IC514 (4/6) 74LS04
IC514 (5/6) 74LS04
IC517 (4/4) 74F08
IC517 (4/4)
74F32
AND GATE
8 V-CONT
7,8 RESET
7,8 E1-9
no mark : CAPTURE SW ON(S2)
09

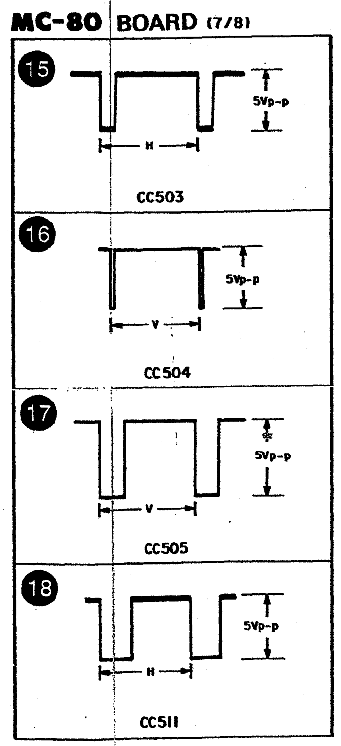
MC-80 (VIDEO (DIGITAL)) SCHEMATIC DIAGRAM

— Ref. No. MC-80 BOARD: 2000 series —

- Refer to page 95 for Printed Wiring Board


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
MC-80 BOARD (7/8)
IC514 (6/6) 74LS04 INVERTER
IC515 (1/4) 74F32 OR GATE
IC515 (3/4) 74F32 GATE ARRAY
IC517 (1/4) 74F08 AND GATE
IC512 74F257 DATA SELECTOR
IC510 HD6435328F10 CPU
IC509 µPD65013GF 416-389 GATE ARRAY
A8
AEN
VM1/E
CUP
RAS
CAS
F8+5V
F0GND
RESET
WHITE
SWDHOL
G0-1
A/DON
SWDH0
SW2CNTL
E0-5
D0-7
F1-7
L1-9
G0G1
I0
C0-7
H3
IN/MEMO
FTOB2
MI-3
E1-9
ADDR
X502
no mark : CAPTURE SW ON (S2)
09


MC-80 BOARD (7/8)
15
5Vp-p
H
CC503
16
5Vp-p
V
CC504
17
5Vp-p
V
CC505
18
5Vp-p
H
CC511


MC-80 BOARD (7/8)
15
5Vp-p
H
CC503
16
5Vp-p
V
CC504
17
5Vp-p
V
CC505
18
5Vp-p
H
CC511

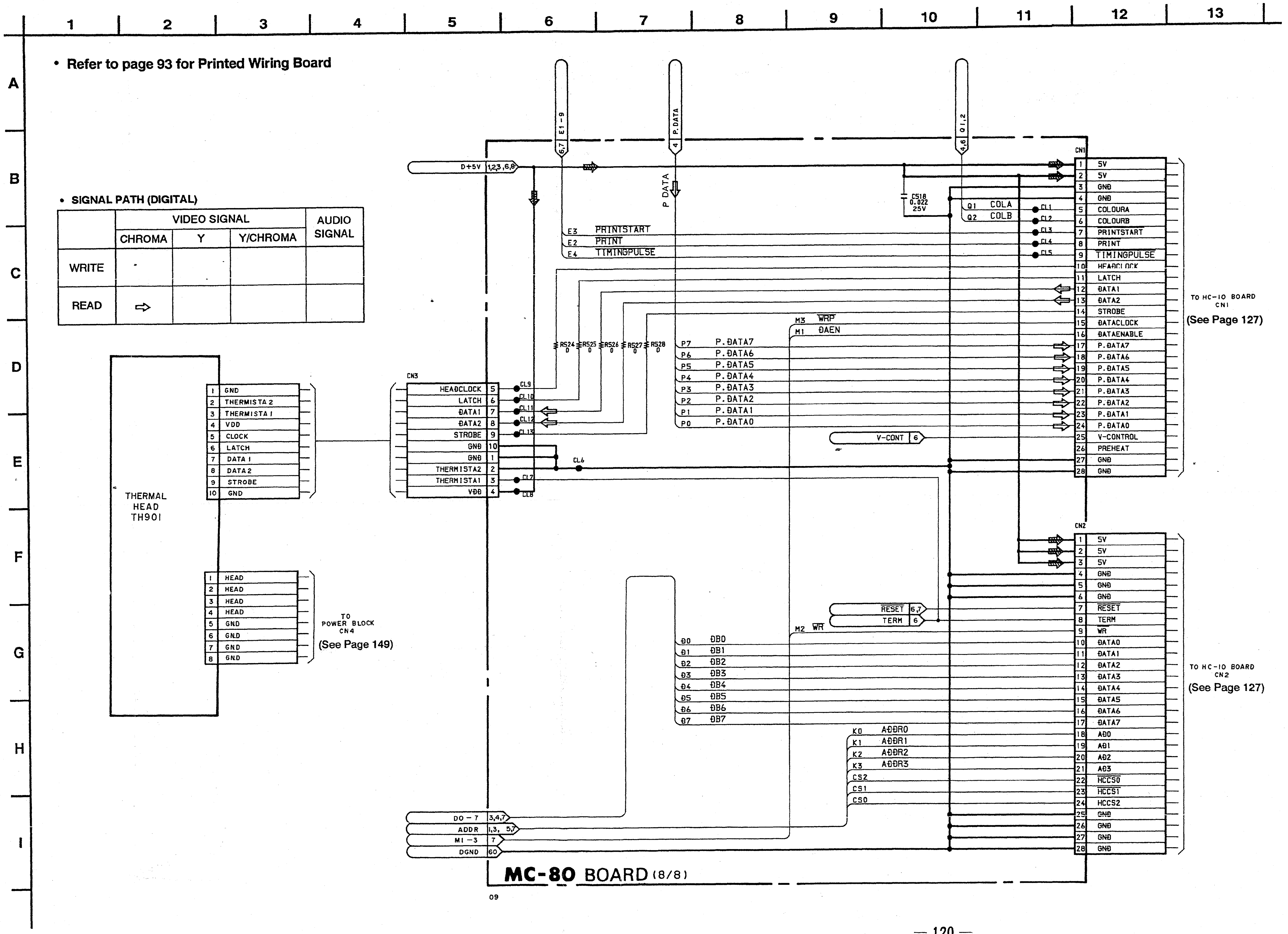
MC-80 (VIDEO (DIGITAL)) SCHEMATIC DIAGRAM

— Ref. No. MC-80 BOARD: 2000 series —

- Refer to page 93 for Printed Wiring Board

- SIGNAL PATH (DIGITAL)

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
WRITE				
READ	⇨			


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
THERMAL HEAD TH901
1 GND
2 THERMISTA 2
3 THERMISTA 1
4 VDD
5 CLOCK
6 LATCH
7 DATA 1
8 DATA 2
9 STROBE
10 GND
1 HEAD
2 HEAD
3 HEAD
4 HEAD
5 GND
6 GND
7 GND
8 GND
TO POWER BLOCK CN4
(See Page 149)
CN3
HEADCLOCK 5
LATCH 6
DATA1 7
DATA2 8
STROBE 9
GND 10
GND 1
THERMISTA2 2
THERMISTA1 3
VDD 4
CL9
CL10
CL11
CL12
CL13
CL7
CL8
CL6
D+5V 1,2,3,6,8
6,7 E1-9
4 P.DATA
4,6 Q1,2
P DATA
E3 PRINTSTART
E2 PRINT
E4 TIMINGPULSE
C518 0.022 25V
Q1 COLA
Q2 COLB
CL1
CL2
CL3
CL4
CL5
R524 0
R525 0
R526 0
R527 0
R528 0
M3 WRP
M1 DAEN
P7 P.DATA7
P6 P.DATA6
P5 P.DATA5
P4 P.DATA4
P3 P.DATA3
P2 P.DATA2
P1 P.DATA1
P0 P.DATA0
V-CONT 6
CN1
1 5V
2 5V
3 GND
4 GND
5 COLOURA
6 COLOURB
7 PRINTSTART
8 PRINT
9 TIMINGPULSE
10 HEADCLOCK
11 LATCH
12 DATA1
13 DATA2
14 STROBE
15 DATACLOCK
16 DATAENABLE
17 P.DATA7
18 P.DATA6
19 P.DATA5
20 P.DATA4
21 P.DATA3
22 P.DATA2
23 P.DATA1
24 P.DATA0
25 V-CONTROL
26 PREHEAT
27 GND
28 GND
TO HC-10 BOARD CN1
(See Page 127)
RESET 6,7
TERM 6
M2 WR
D0 DB0
D1 DB1
D2 DB2
D3 DB3
D4 DB4
D5 DB5
D6 DB6
D7 DB7
K0 ADDR0
K1 ADDR1
K2 ADDR2
K3 ADDR3
CS2
CS1
CS0
CN2
1 5V
2 5V
3 5V
4 GND
5 GND
6 GND
7 RESET
8 TERM
9 WR
10 DATA0
11 DATA1
12 DATA2
13 DATA3
14 DATA4
15 DATA5
16 DATA6
17 DATA7
18 AD0
19 AD1
20 AD2
21 AD3
22 HCCS0
23 HCCS1
24 HCCS2
25 GND
26 GND
27 GND
28 GND
TO HC-10 BOARD CN2
(See Page 127)
DO-7 3,4,7
ADDR 1,3,5,7
MI-3 7
DGND 60
MC-80 BOARD (8/8)
09

HC-10 (THERMAL HEAD CONTROL) PRINTED WIRING BOARD

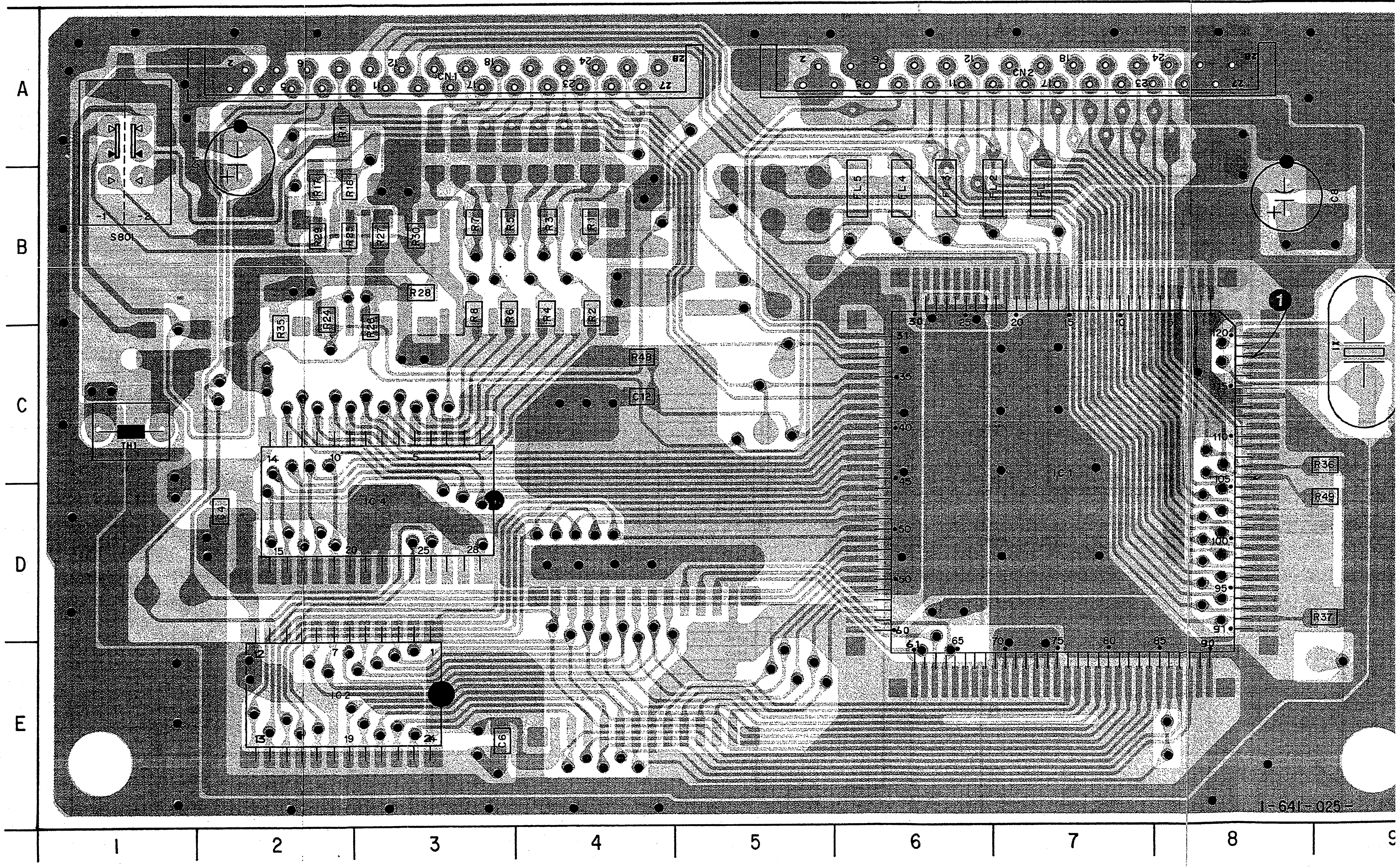
— Ref. No. HC-10 BOARD: 3000 series —

HC-10 BOARD	
CN001	A-3
CN002	A-6
IC001	C-7
IC002	E-2
IC003	E-14
IC004	D-3
IC005	B-15
IC006	B-16

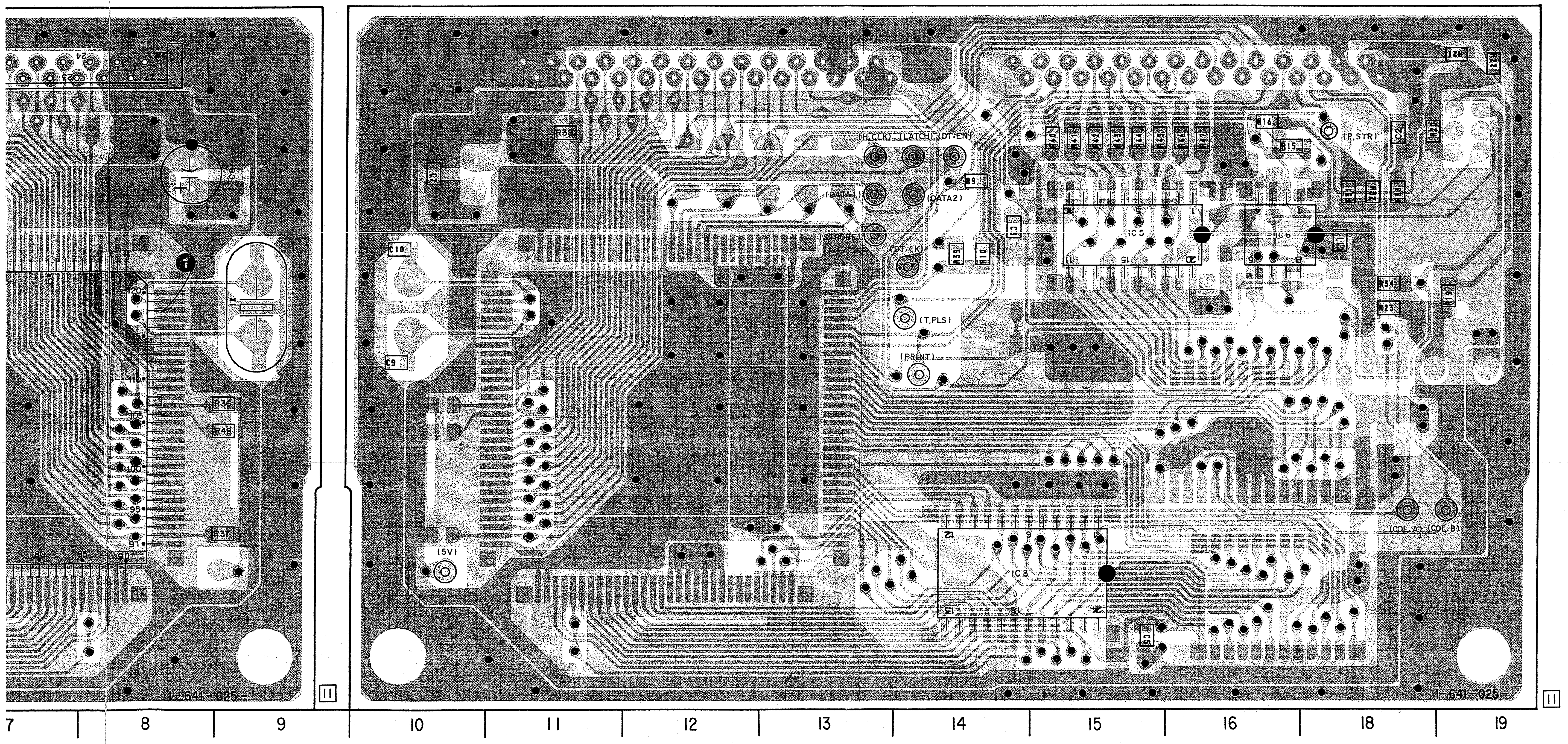
⟨ IC ⟩

IC001	8-759-154-84	IC	HDC443V2
IC002	8-759-053-58	IC	IDT6116SA25S0
IC003	8-759-053-58	IC	IDT6116SA25S0
IC004	8-759-062-13	IC	uPD23C1000AG-360
IC005	8-759-926-77	IC	SN74HC541ANS
IC006	8-759-983-69	IC	LM358PS

HC-10 BOARD (COMPONENT SIDE)

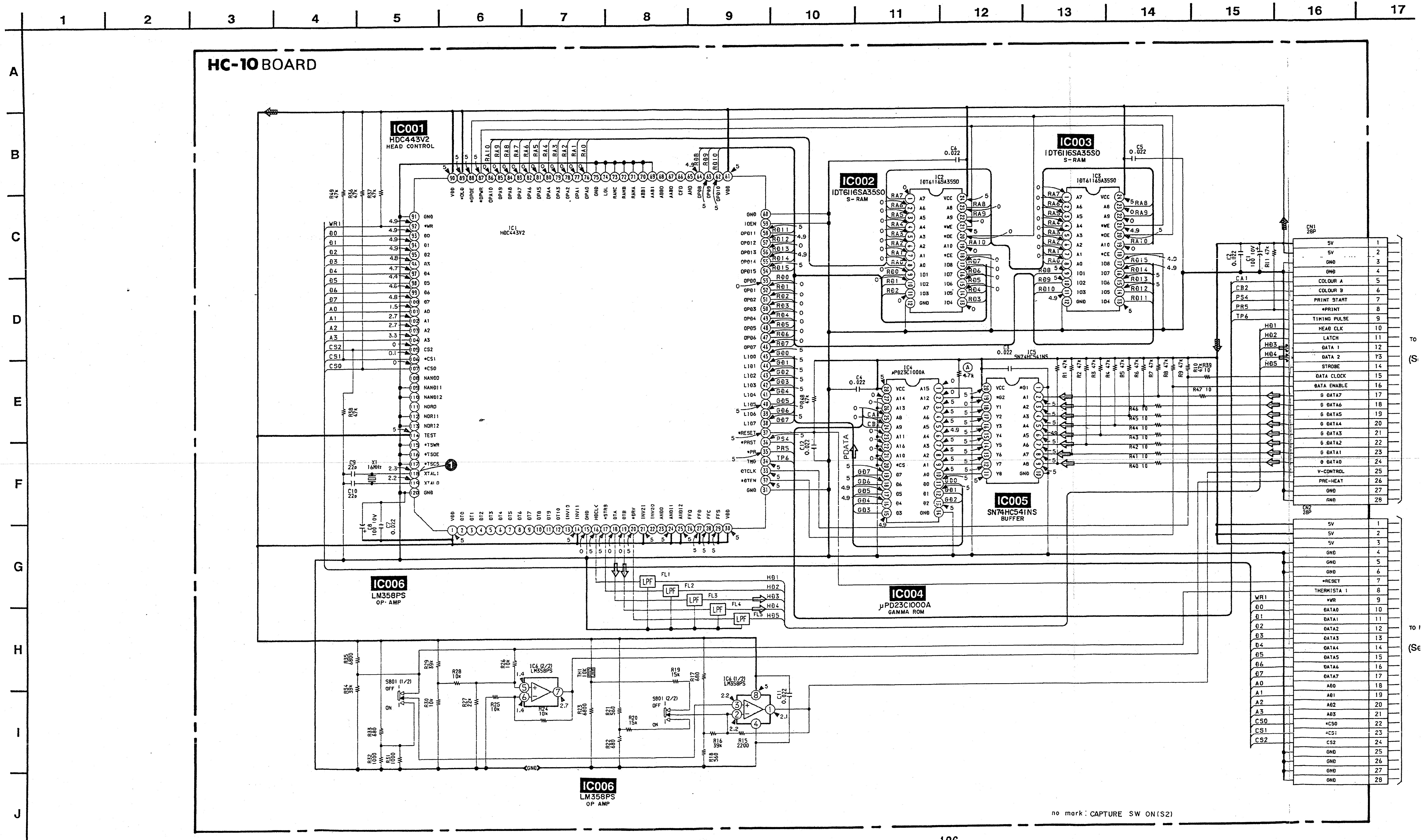

A
B
C
D
E
1
2
3
4
5
6
7
8
9
CN1
CN2
S801
TH1
R28
R35
R24
R26
R8
R6
R4
R2
R48
C12
R36
R49
R37
C6
IC4
IC2
FL1
FL2
FL3
FL4
FL5
1-641-025-

HC-10 BOARD (CONDUCTOR SIDE)


(H.CLK)
(LATCH)
(DT.EN)
(DATA1)
(DATA2)
(STROBE)
(DT.CK)
(T.PLS)
(PRINT)
(5V)
(P.STR)
(COL.A)
(COL.B)
IC5
IC6
IC3
X1
C4
C9
C10
C1
C2
R9
R15
R16
R20
R21
R22
R23
R34
R36
R37
R38
R39
R49
1
120
115
110
105
100
95
91
1-641-025-
11
7
8
9
10
11
12
13
14
15
16
18
19

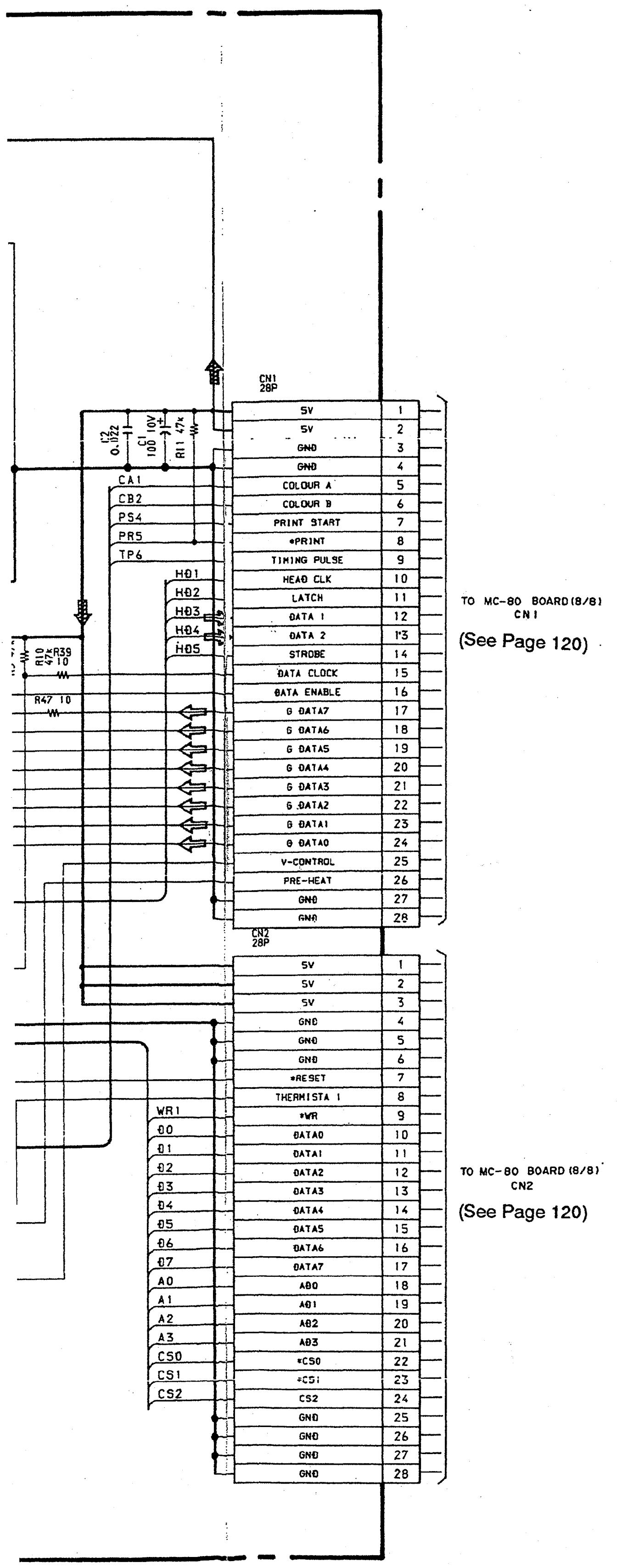
HC-10 (THERMAL HEAD CONTROL) SCHEMATIC DIAGRAM

— Ref. No. HC-10 BOARD: 3000 series —

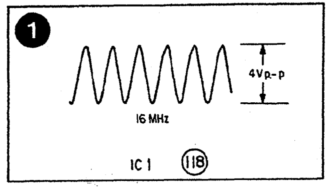

HC-10 BOARD
IC001
HDC443V2
HEAD CONTROL
IC002
IDT6116SA35SO
S-RAM
IC003
IDT6116SA35SO
S-RAM
IC004
μPD23C1000A
GAMMA ROM
IC005
SN74HC541NS
BUFFER
IC006
LM358PS
OP-AMP
IC6 (2/2) LM358PS
IC6 (1/2) LM358PS
S801 (1/2)
S801 (2/2)
LPF
FL1
FL2
FL3
FL4
FL5
HD1
HD2
HD3
HD4
HD5
PDATA
CN1 28P
5V
5V
GND
GND
COLOUR A
COLOUR B
PRINT START
*PRINT
TIMING PULSE
HEAD CLK
LATCH
DATA 1
DATA 2
STROBE
DATA CLOCK
DATA ENABLE
B DATA7
B DATA6
B DATA5
B DATA4
B DATA3
B DATA2
B DATA1
B DATA0
V-CONTROL
PRE-HEAT
GND
GND
CN2 28P
5V
5V
5V
GND
GND
GND
*RESET
THERMISTA 1
*WR
DATA0
DATA1
DATA2
DATA3
DATA4
DATA5
DATA6
DATA7
AB0
AB1
AB2
AB3
*CS0
*CS1
CS2
GND
GND
GND
GND
TO
(S
TO
(S
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J

no mark : CAPTURE SW ON(S2)

15
16
17
18
19
20
21
22


CN1
28P
5V
5V
GND
GND
COLOUR A
COLOUR B
PRINT START
*PRINT
TIMING PULSE
HEAD CLK
LATCH
DATA 1
DATA 2
STROBE
DATA CLOCK
DATA ENABLE
G DATA7
G DATA6
G DATA5
G DATA4
G DATA3
G DATA2
G DATA1
G DATA0
V-CONTROL
PRE-HEAT
GND
GND
C2 0.022
C1 100 10V
R11 47k
R10 47k
R39 10
R47 10
CA1
CB2
PS4
PR5
TP6
HD1
HD2
HD3
HD4
HD5
TO MC-80 BOARD (8/8) CN1
(See Page 120)
CN2
28P
5V
5V
5V
GND
GND
GND
*RESET
THERMISTA 1
*WR
DATA0
DATA1
DATA2
DATA3
DATA4
DATA5
DATA6
DATA7
AD0
AD1
AD2
AD3
*CS0
*CS1
CS2
GND
GND
GND
GND
WR1
D0
D1
D2
D3
D4
D5
D6
D7
A0
A1
A2
A3
CS0
CS1
CS2
TO MC-80 BOARD (8/8) CN2
(See Page 120)

HC-10 BOARD


❶
4Vp-p
16 MHz
IC1 ⑱

- **SIGNAL PATH (DIGITAL)**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
WRITE				
READ	⇨			

UP-2200P

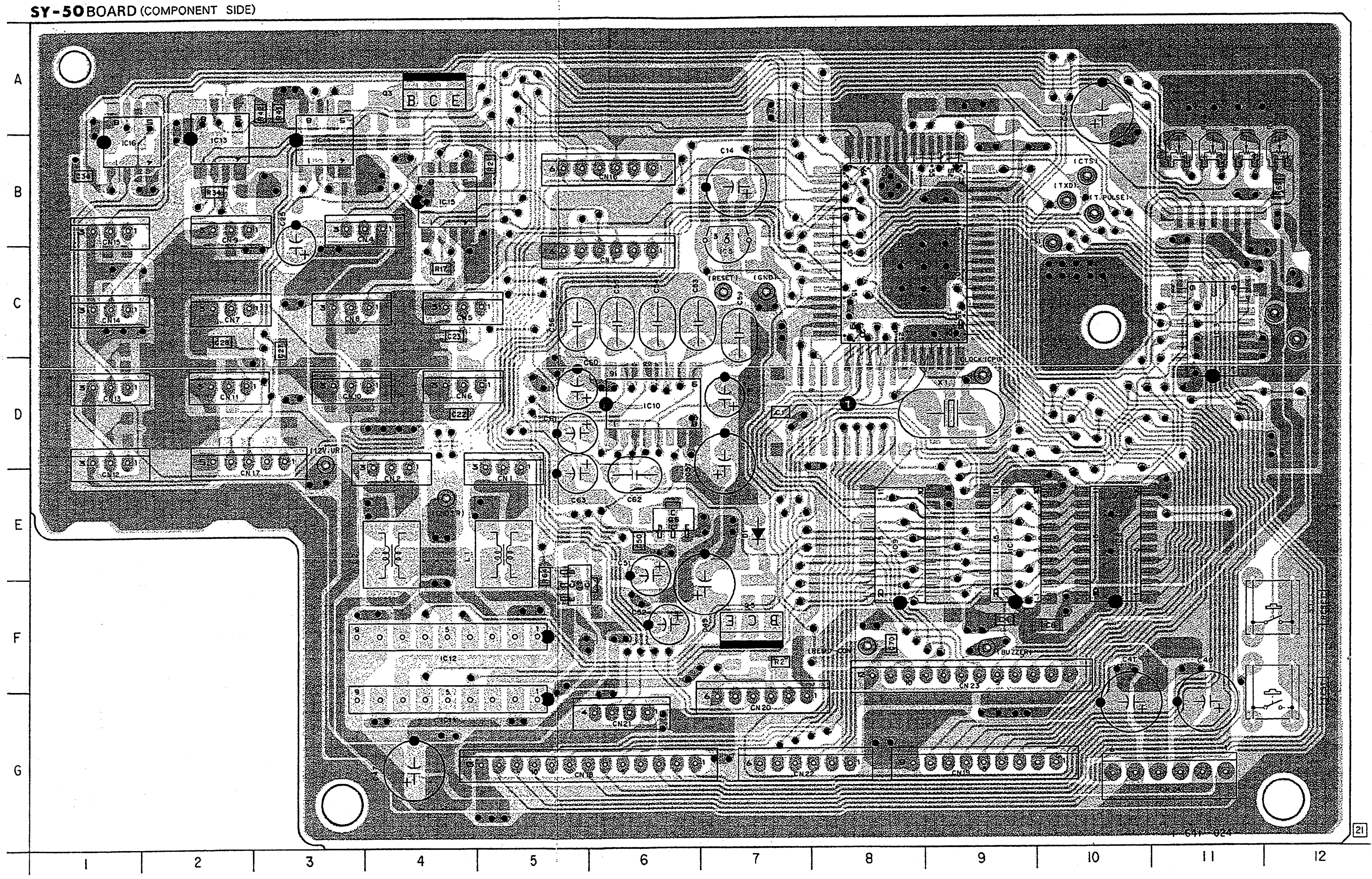
SY-50 (SERVO/SYSTEM CONTROL), SW-4 (PP SET SENSOR), SW-5 (PP EJECT SENSOR), SW-6 (FG SENSOR), SW-7 (POSI SENSOR), SW-8 (PP LOAD SENSOR), SW-9 (LOCK TOP SENSOR), SW-10 (BTM SENSOR), PTC-8 (RIBBON LED), PTC-9 (PP T

— Ref. No. SY-50 BOARD: 4000 series, SW-4, SW-5, SW-6, SW-7, SW-8, SW-9, SW-10, PTC-8, PTC-9, PTC-10, PTC-11, S-12 BOARDS: 10000 series —

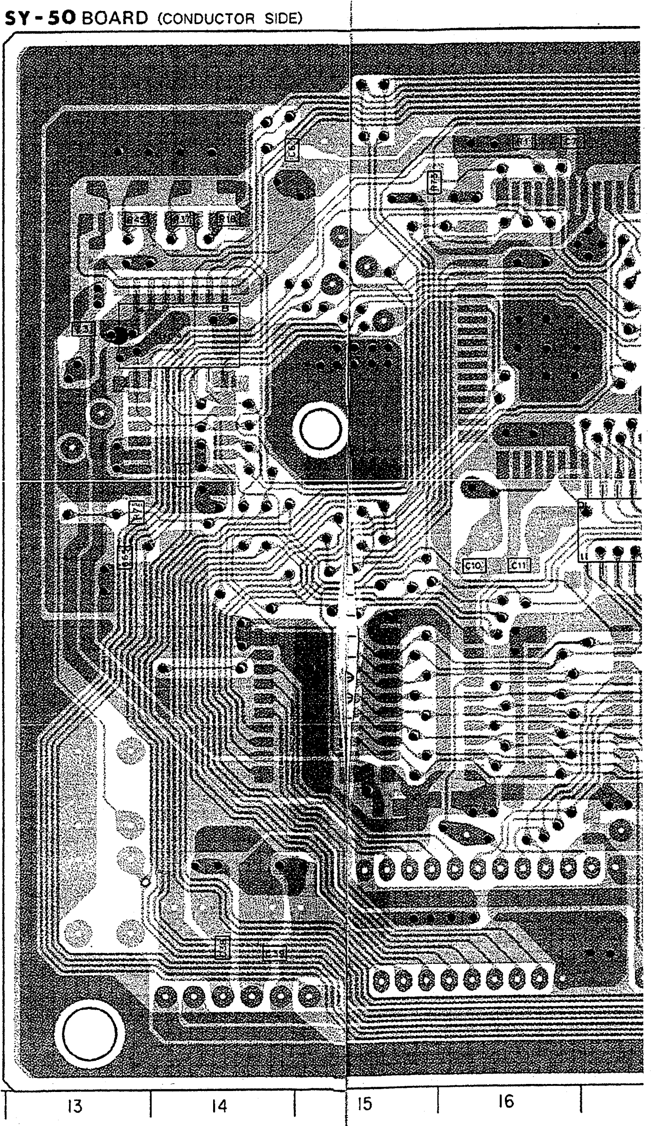
SY-50 BOARD

CN001	E-7
CN002	E-4
CN003	C-6
CN004	B-3
CN005	C-4
CN006	D-4
CN007	C-2
CN008	C-3
CN009	B-2
CN010	D-3
CN011	D-2
CN012	E-1
CN013	D-1
CN014	C-1
CN015	B-1
CN016	B-6
CN017	E-2
CN018	G-5
CN019	G-9
CN020	G-7
CN021	G-6
CN022	G-7
CN023	F-9
CN024	G-11
D001	E-7
IC001	C-8
IC003	C-11
IC004	C-14
IC005	C-7
IC006	D-17
IC007	E-9
IC008	E-10
IC009	E-8
IC010	D-6
IC011	G-4
IC012	F-4
IC013	B-2
IC014	B-3
IC015	B-4
IC016	B-1
Q001	F-18
Q002	A-21
Q003	A-4
Q004	E-19
Q005	F-7
Q006	E-6
Q007	F-5
Q008	E-20
RV001	B-12
RV002	B-11
RV003	B-11
RV004	B-11

SY-50 BOARD (COMPONENT SIDE)



SY-50 BOARD (CONDUCTOR SIDE)



〈 DIODE 〉

D001	8-719-110-16	DIODE	RD10ES-B1

〈 IC 〉

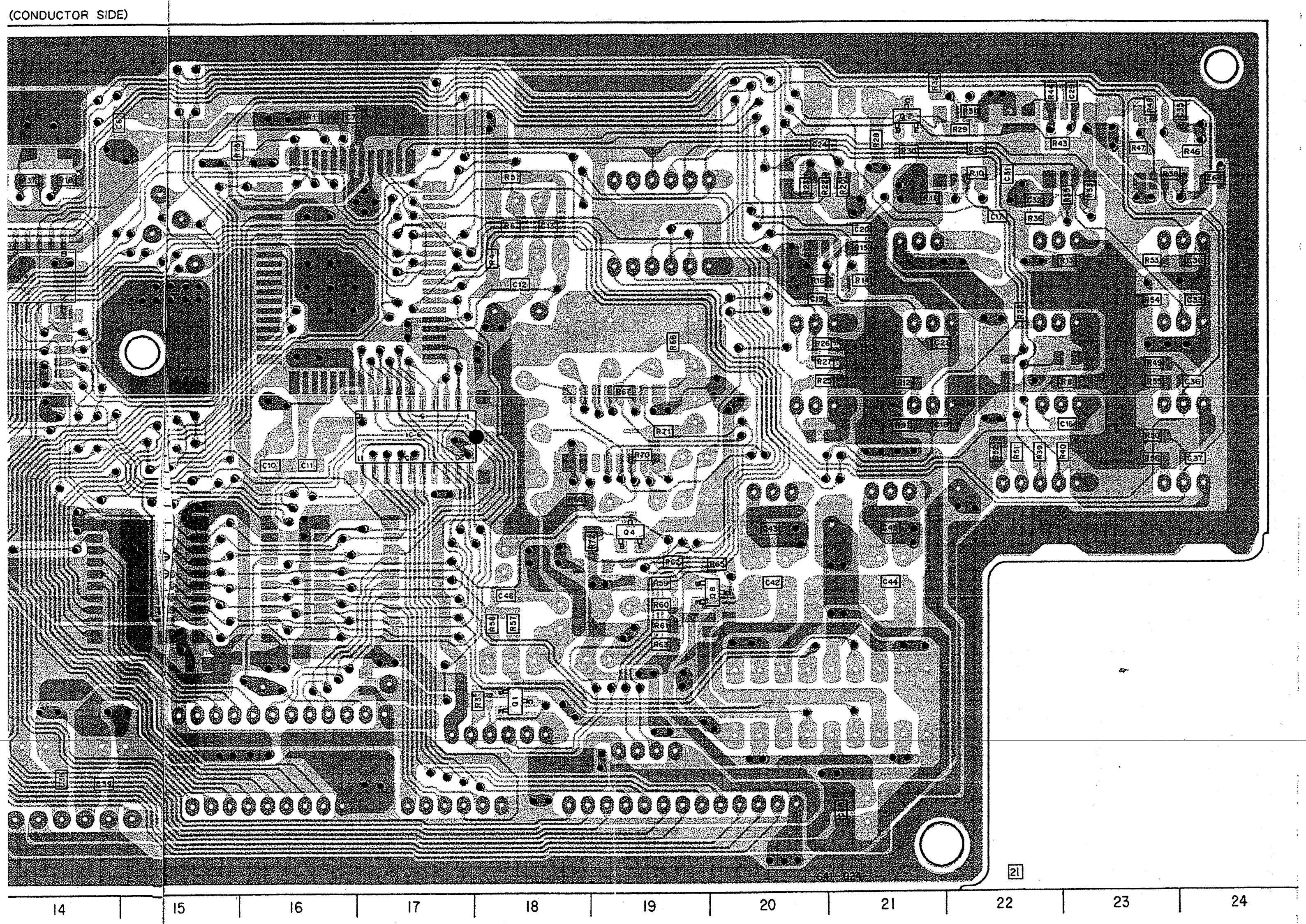
IC001	8-759-073-32	IC	TMP91C640F-2351
IC003	8-759-926-12	IC	SN74HC139ANS
IC004	8-759-925-85	IC	SN74HC32ANS
IC005	8-759-970-26	IC	PST523C
IC006	8-759-926-82	IC	SN74HC574ANS
IC007	8-759-926-82	IC	SN74HC574ANS
IC008	8-759-926-77	IC	SN74HC541ANS
IC009	8-759-926-82	IC	SN74HC574ANS
IC010	8-759-909-45	IC	CX20084
IC011	8-759-633-10	IC	M54544AL
IC012	8-759-633-10	IC	M54544AL
IC013	8-759-100-93	IC	uPC393G2
IC014	8-759-983-69	IC	LM358PS
IC015	8-759-100-93	IC	uPC393G2
IC016	8-759-100-93	IC	uPC393G2

〈 TRANSISTOR 〉

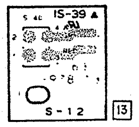
Q001	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q002	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q003	8-729-140-96	TRANSISTOR	KSC1008
Q004	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q005	8-729-807-12	TRANSISTOR	2SD1802-S
Q006	8-729-101-07	TRANSISTOR	2SB798-DL
Q007	8-729-101-07	TRANSISTOR	2SB798-DL
Q008	8-729-120-28	TRANSISTOR	2SC1623-L5L6

SOR), PTC-8 (RIBBON LED), PTC-9 (PP TRAY LED), PTC-10 (RIBBON SENSOR), PTC-11 (PP TRAY SENSOR), S-12 (RB CART SWITCH) PRINTED WIRING BOARDS

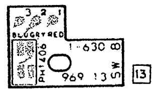
(CONDUCTOR SIDE)


21
14
15
16
17
18
19
20
21
22
23
24

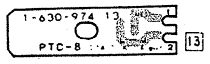
S-12 BOARD



SW-8 BOARD


3 2 1
BLU GRY RED
PH1406
1-630
969 13
SW-8
13

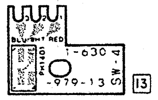
PTC-8 BOARD


1-630-974 13
PTC-8
13

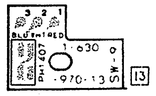
(DIODE)

D1401 8-719-820-46 LED TLN107A

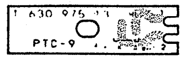
SW-4 BOARD


BLU WHT RED
PH1401
1-630
-979-13
SW-4
13

SW-9 BOARD


3 2 1
BLU WHT RED
PH1407
1-630
-970-13
SW-9
13

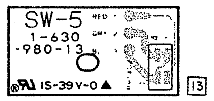
PTC-9 BOARD


1-630-975
PTC-9

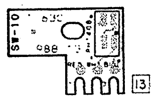
(DIODE)

D1402 8-719-820-46 LED TLN107A

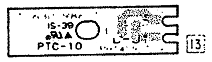
SW-5 BOARD


SW-5
1-630
-980-13
RED
GRY
IS-39V-0
13

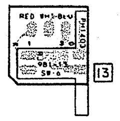
SW-10 BOARD


SW-10
988
PH1408
RED WHT BLU
13

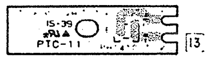
PTC-10 BOARD


IS-39
PTC-10
13

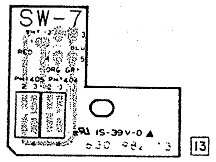
SW-6 BOARD


RED WHT BLU
PH1403
SW-6
13

PTC-11 BOARD

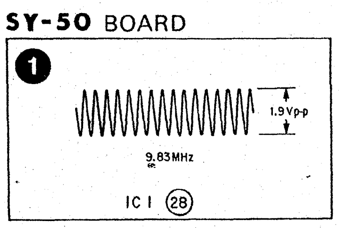

IS-39
PTC-11
13

SW-7 BOARD

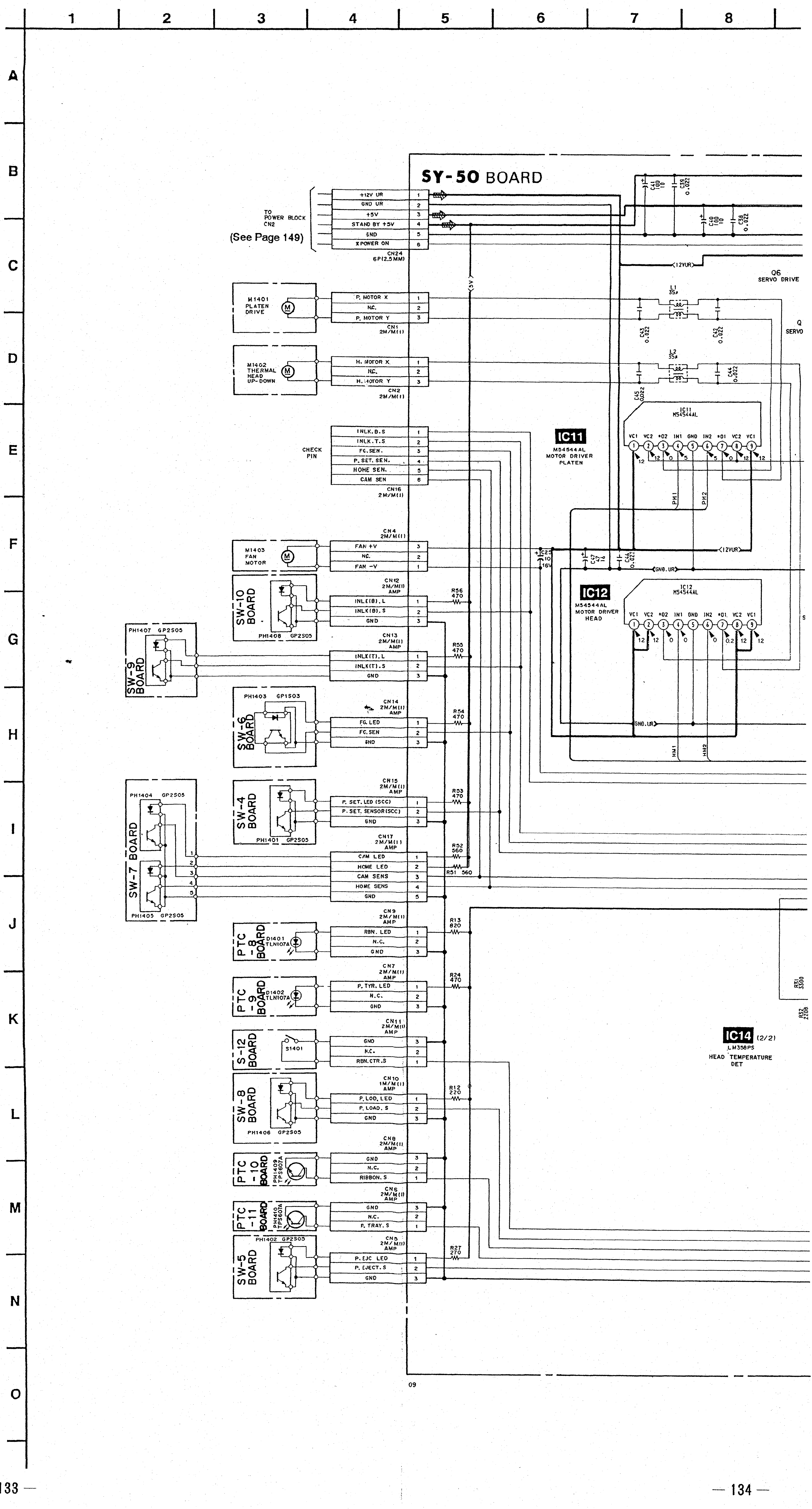

SW-7
RED
BLU
ORG GRY
PH1405 PH1404
IS-39V-0
13

SY-50 (SERVO/SYSTEM CONTROL), SW-4 (PP SET SENSOR), SW-5 (PP EJECT SENSOR), SW-6 (FG SENSOR), SW-7 (POSI SENSO

— Ref. No. SY-50 BOARD: 4000 series, SW-4, SW-5, SW-6, SW-7, SW-8, SW-9, SW-10, PTC-8, PTC-9, PTC-10, PTC-11, S-12 BOARDS: 10000 series —

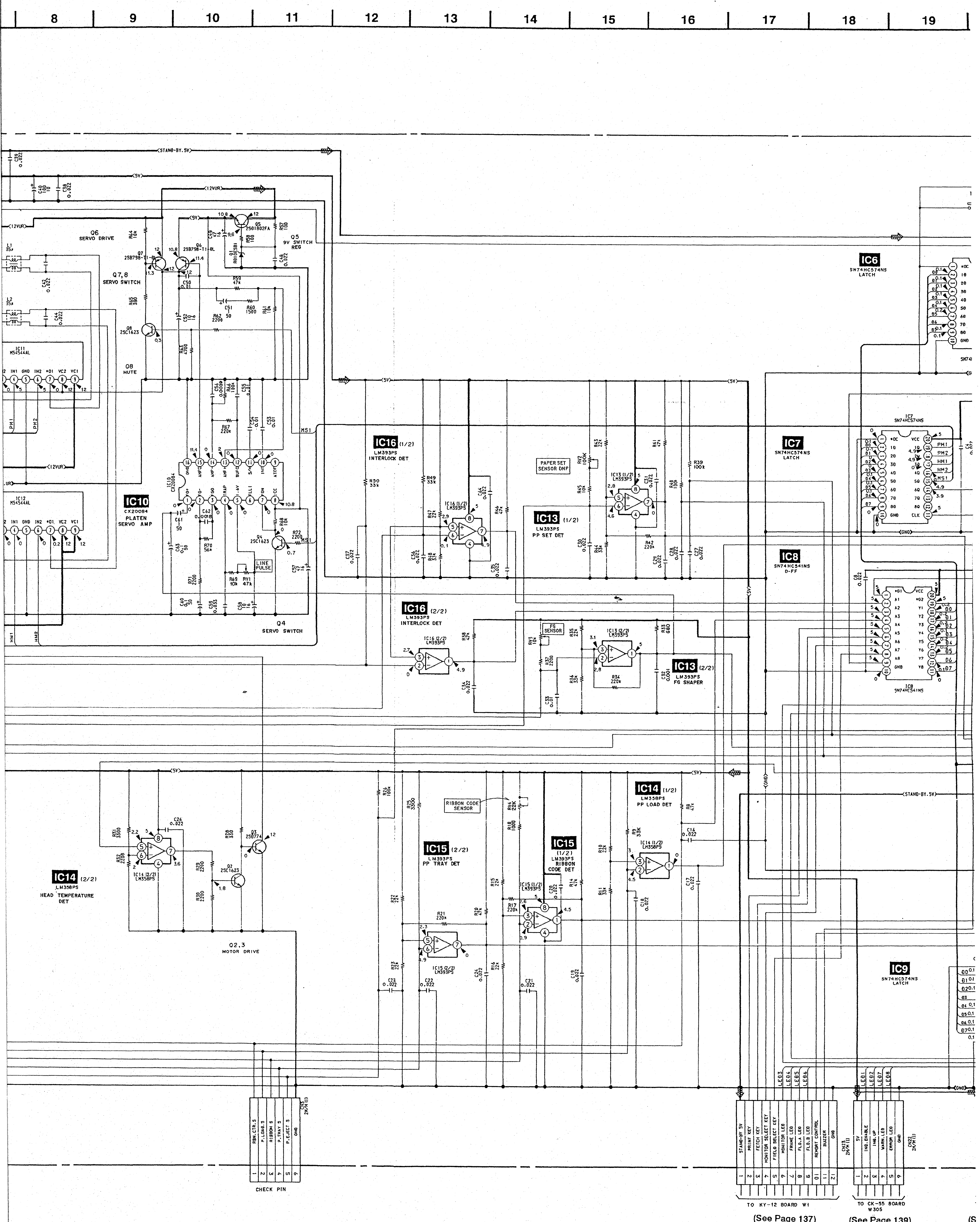


SY-50 BOARD
❶
1.9Vp-p
9.83MHz
IC1 ㉘



1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
SY-50 BOARD
TO POWER BLOCK CN2
(See Page 149)
+12V UR
GND UR
+5V
STAND BY +5V
GND
XPOWER ON
CN24 6P(2.5MM)
M1401 PLATEN DRIVE
P. MOTOR X
N.C.
P. MOTOR Y
CN1 2M/M(1)
M1402 THERMAL HEAD UP-DOWN
H. MOTOR X
N.C.
H. MOTOR Y
CN2 2M/M(1)
CHECK PIN
INLK.B.S
INLK.T.S
FG.SEN.
P. SET. SEN.
HOME SEN.
CAM SEN
CN16 2M/M(1)
M1403 FAN MOTOR
CN4 2M/M(1)
FAN +V
N.C.
FAN −V
SW-10 BOARD
PH1408 GP2S05
CN12 2M/M(1) AMP
INLK(B).L
INLK(B).S
GND
SW-9 BOARD
PH1407 GP2S05
CN13 2M/M(1) AMP
INLK(T).L
INLK(T).S
SW-6 BOARD
PH1403 GP1S03
CN14 2M/M(1) AMP
FG.LED
FG.SEN
SW-4 BOARD
PH1401 GP2S05
CN15 2M/M(1) AMP
P. SET. LED (SCC)
P. SET. SENSOR(SCC)
SW-7 BOARD
PH1404 GP2S05
PH1405 GP2S05
CN17 2M/M(1) AMP
CAM LED
HOME LED
CAM SENS
HOME SENS
PTC-8 BOARD
D1401 TLN107A
CN9 2M/M(1) AMP
RBN. LED
PTC-9 BOARD
D1402 TLN107A
CN7 2M/M(1) AMP
P. TYR. LED
S-12 BOARD
S1401
CN11 2M/M(1) AMP
RBN.CTR.S
SW-8 BOARD
PH1406 GP2S05
CN10 1M/M(1) AMP
P.LOD.LED
P.LOAD. S
PTC-10 BOARD
PH1409 TPS607A
CN8 2M/M(1) AMP
RIBBON. S
PTC-11 BOARD
PH1410 TPS607A
CN6 2M/M(1) AMP
P. TRAY. S
SW-5 BOARD
PH1402 GP2S05
CN5 2M/M(1) AMP
P. EJC LED
P. EJECT. S
R56 470
R55 470
R54 470
R53 470
R52 560
R51 560
R13 820
R24 470
R12 220
R27 270
5V
C41 100 10
C39 0.022
C40 100 10
C38 0.022
12VUR
Q6 SERVO DRIVE
Q SERVO
L1 35μ
L2 35μ
C43 0.022
C42 0.022
C44 0.022
C45 0.022
IC11 M54544AL MOTOR DRIVER PLATEN
IC11 M54544AL
VC1 VC2 *O2 IN1 GND IN2 *O1 VC2 VC1
PH1
PH2
C23 10 16V
C47 47 16
C46 0.022
GND.UR
IC12 M54544AL MOTOR DRIVER HEAD
IC12 M54544AL
HM1
HM2
IC14 (2/2) LM358PS HEAD TEMPERATURE DET
R31 3300
R32 2200
09

), SW-7 (POSI SENSOR), SW-8 (PP LOAD SENSOR), SW-9 (LOCK TOP SENSOR), SW-10 (BTM SENSOR), PTC-8 (RIBBON LED), PTC-9 (PP TRAY LED), PTC-10 (RIBBON SENSOR), PTC


8
9
10
11
12
13
14
15
16
17
18
19
IC10 CX20084 PLATEN SERVO AMP
IC11 M54544AL
IC12 M54544AL
Q6 SERVO DRIVE
Q7,8 SERVO SWITCH
Q8 MUTE
Q5 9V SWITCH REG
Q4 SERVO SWITCH
LINE PULSE
<STAND-BY.5V>
<5V>
<12VUR>
<GND>
IC6 SN74HC574NS LATCH
IC7 SN74HC574NS LATCH
IC8 SN74HC541NS D-FF
IC9 SN74HC574NS LATCH
IC16 (1/2) LM393PS INTERLOCK DET
IC16 (2/2) LM393PS INTERLOCK DET
IC13 (1/2) LM393PS PP SET DET
IC13 (2/2) LM393PS FG SHAPER
PAPER SET SENSOR DNP
FG SENSOR
IC14 (2/2) LM358PS HEAD TEMPERATURE DET
Q2,3 MOTOR DRIVE
IC15 (2/2) LM393PS PP TRAY DET
IC15 (1/2) LM393PS RIBBON CODE DET
RIBBON CODE SENSOR
IC14 (1/2) LM358PS PP LOAD DET
RBN.CTR.S
P.LOAD.S
RIBBON S
P.TRAY S
P.EJECT S
GND
CN3 2K/M (I)
CHECK PIN
STAND-BY 5V
PRINT KEY
FETCH KEY
MONITOR SELECT KEY
FIELD SELECT KEY
MONITOR LED
FRAME LED
FLD.A LED
FLD.B LED
REMORT CONTROL
BUZZER
GND
CN23 2K/M (I)
TO KY-12 BOARD W1
5V
IND.ENABLE
IND.UP
WARN.LED
ERROR LED
GND
CN22 2K/M (I)
TO CK-55 BOARD W305

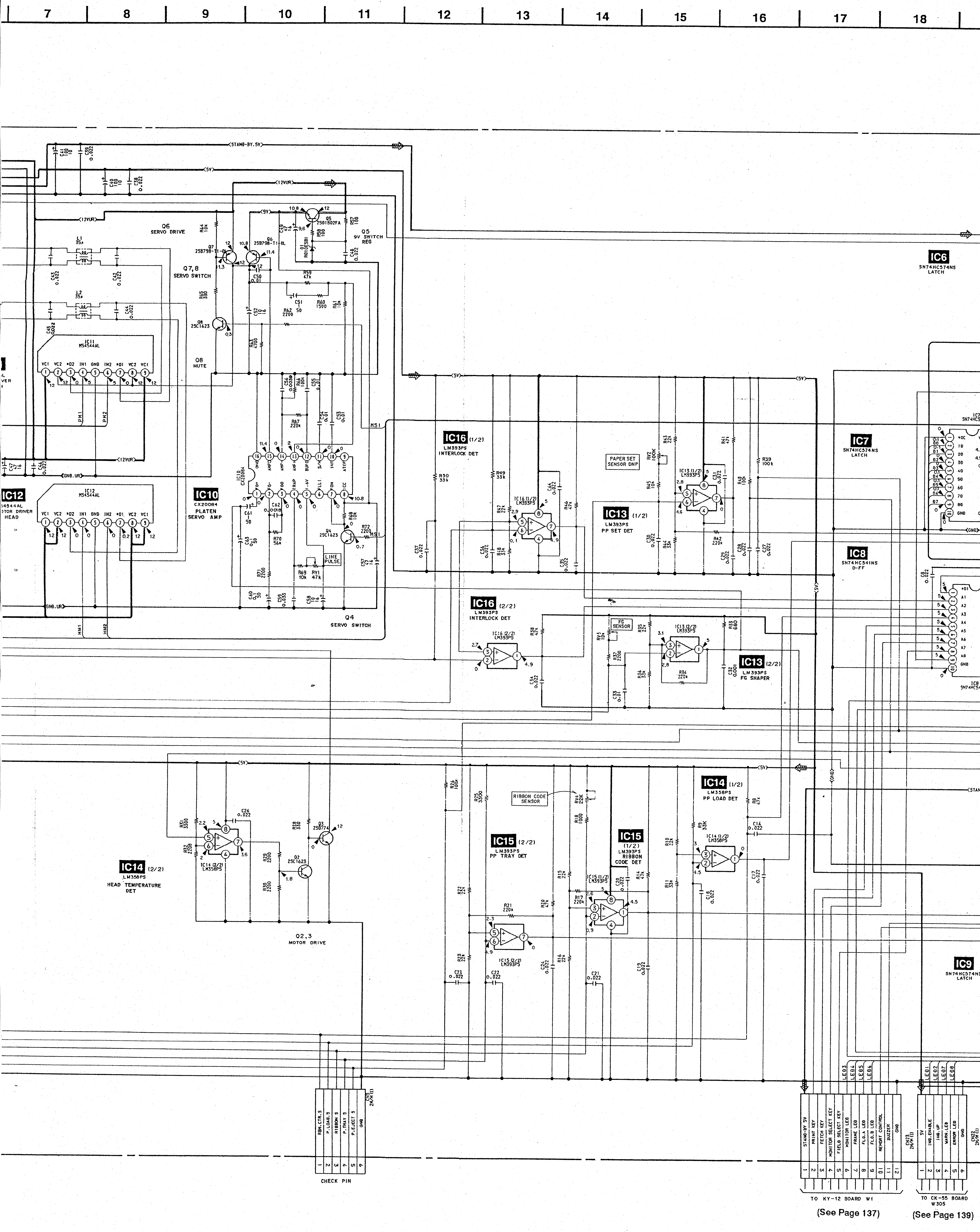
(See Page 137)

(See Page 139)

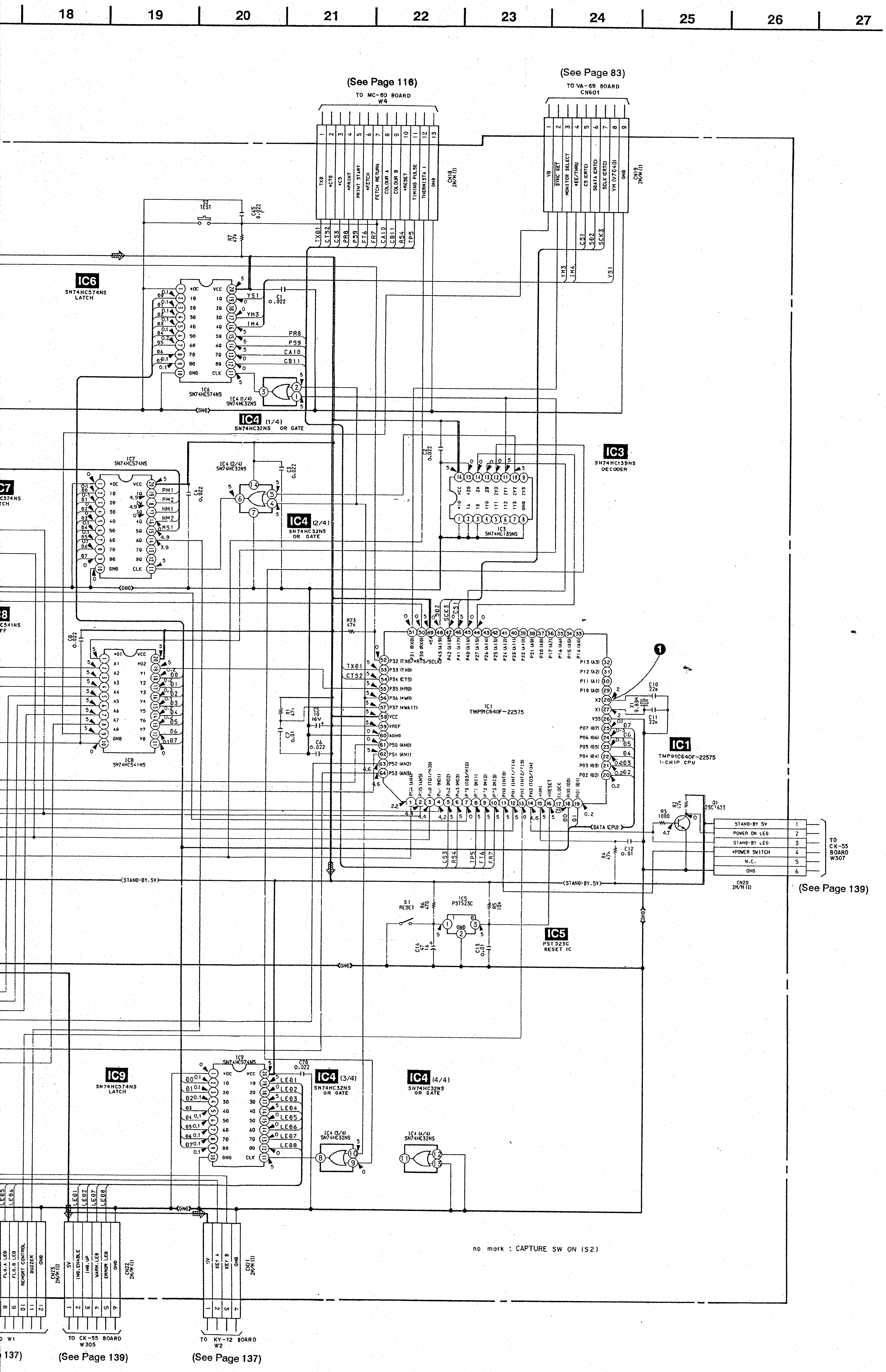
(S

6 (FG SENSOR), SW-7 (POSI SENSOR), SW-8 (PP LOAD SENSOR), SW-9 (LOCK TOP SENSOR), SW-10 (BTM SENSOR), PTC-8 (RIBBON LED), PTC-9 (PP TRAY LED), PTC-10 (RIBBON SE

S: 10000 series —

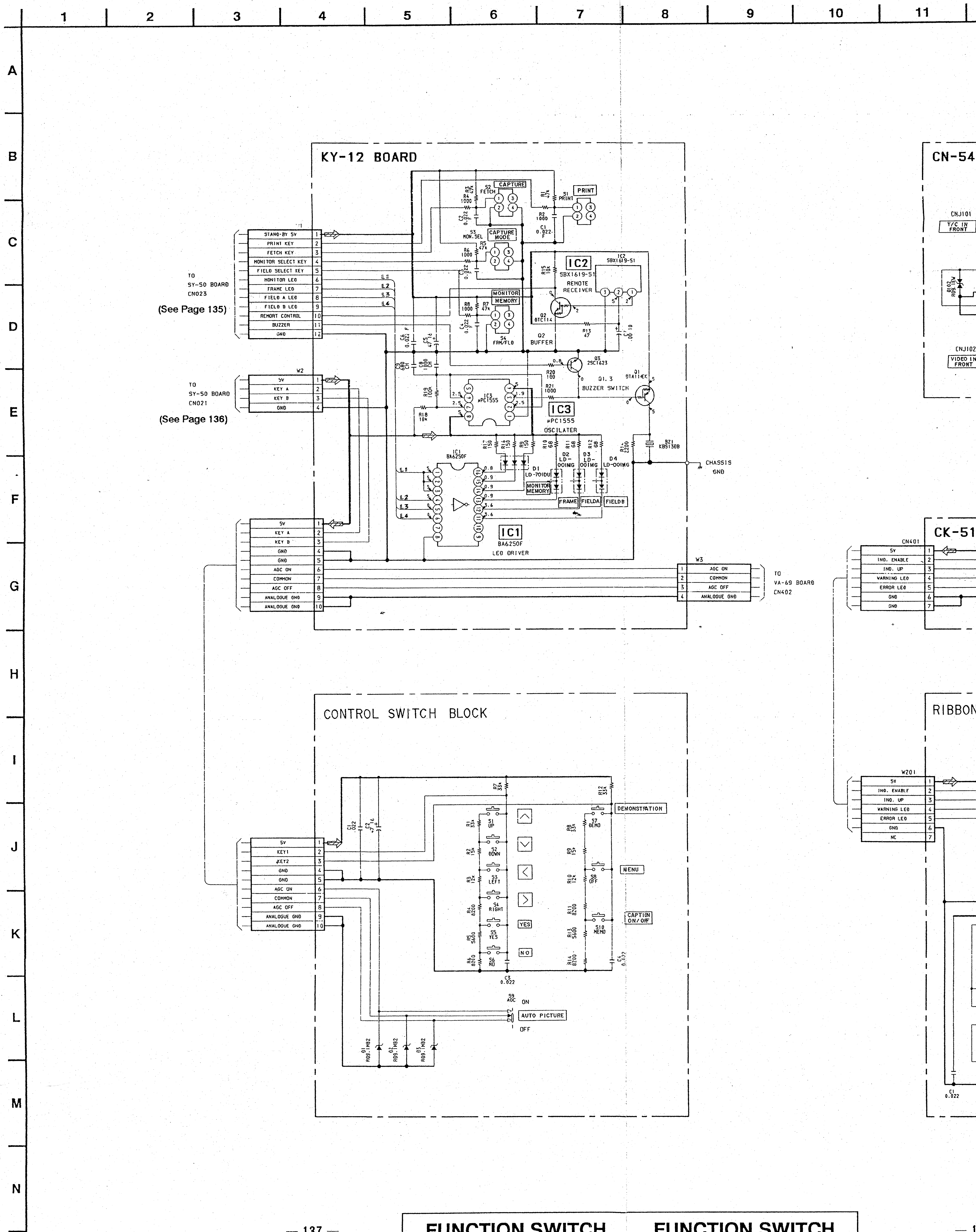


7
8
9
10
11
12
13
14
15
16
17
18
IC12
M54544AL
MOTOR DRIVER
HEAD
IC11
M54544AL
IC10
CX20084
PLATEN
SERVO AMP
Q6
SERVO DRIVE
Q7,8
SERVO SWITCH
Q8
2SC1623
MUTE
Q5
2SD1802FA
9V SWITCH
REG
D1
RD10ESB1
Q4
2SC1623
SERVO SWITCH
LINE
PULSE
PH1
PH2
HM1
HM2
MS1
L1
35μ
L2
35μ
<STAND-BY.5V>
<5V>
<12VUR>
<9V>
<GND.UR>
<GND>
IC6
SN74HC574NS
LATCH
IC7
SN74HC574NS
LATCH
IC8
SN74HC541NS
D-FF
IC9
SN74HC574NS
LATCH
IC16 (1/2)
LM393PS
INTERLOCK DET
IC16 (2/2)
LM393PS
INTERLOCK DET
IC13 (1/2)
LM393PS
PP SET DET
PAPER SET
SENSOR DNP
IC13 (2/2)
LM393PS
FG SHAPER
FG
SENSOR
IC14 (2/2)
LM358PS
HEAD TEMPERATURE
DET
Q2,3
MOTOR DRIVE
Q2
2SC1623
Q3
2SD774
IC15 (2/2)
LM393PS
PP TRAY DET
IC15 (1/2)
LM393PS
RIBBON
CODE DET
RIBBON CODE
SENSOR
IC14 (1/2)
LM358PS
PP LOAD DET
RBN.CTR.S
P.LOAD.S
RIBBON S
P.TRAY S
P.EJECT S
GND
CN3
2K/H(I)
CHECK PIN
STAND-BY 5V
PRINT KEY
FETCH KEY
MONITOR SELECT KEY
FIELD SELECT KEY
MONITOR LED
FRAME LED
FLD.A LED
FLD.B LED
REMORT CONTROL
BUZZER
GND
CN23
2K/H(I)
LE03
LE04
LE05
LE06
TO KY-12 BOARD W1
(See Page 137)
5V
IND.ENABLE
IND.UP
WARN.LED
ERROR LED
GND
CN22
2K/H(I)
LE01
LE02
LE07
LE08
TO CK-55 BOARD
W305
(See Page 139)

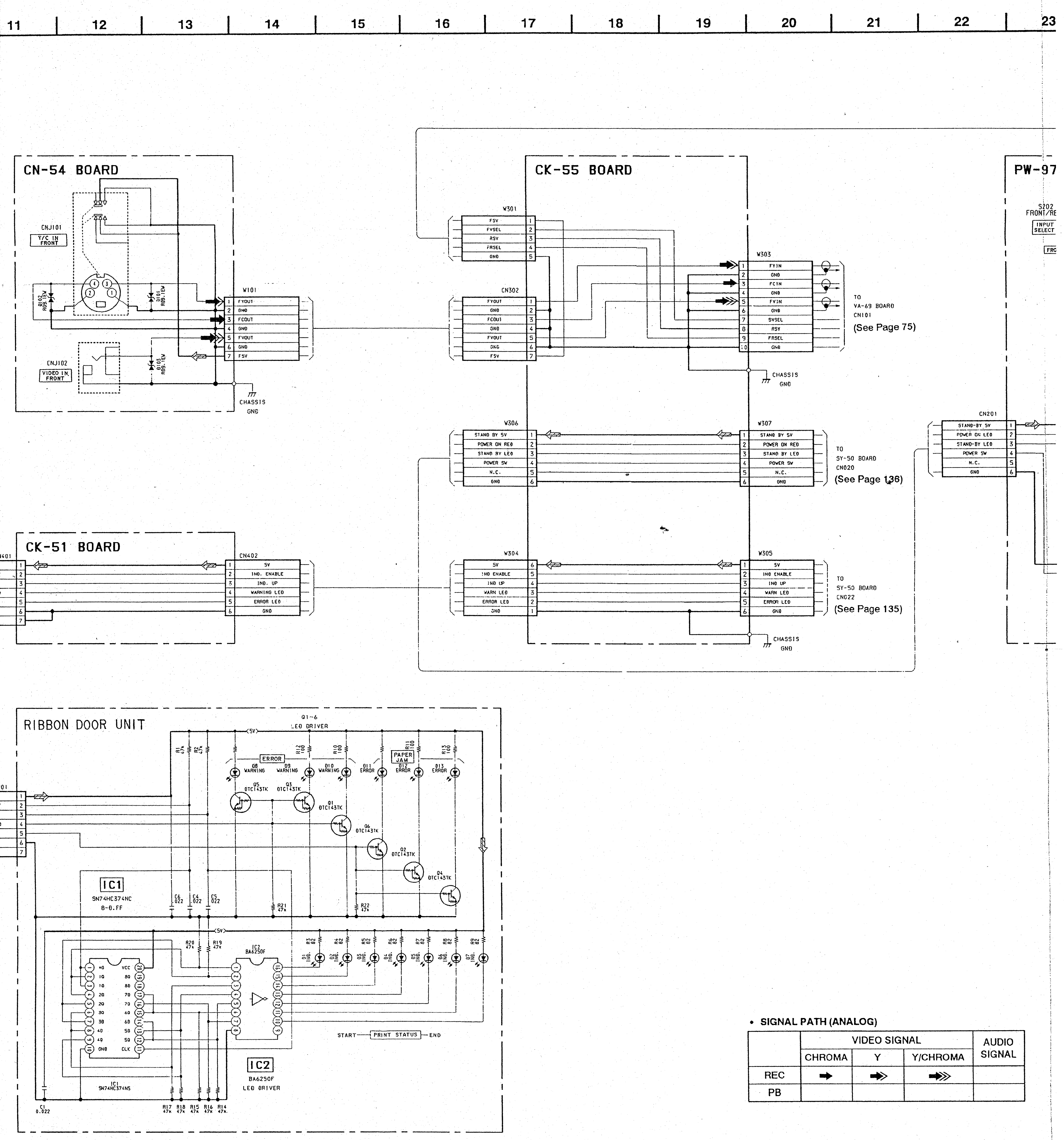

18
19
20
21
22
23
24
25
26
27
(See Page 118)
TO MC-80 BOARD W4
TXD
*CTS
*CS
*PRINT
PRINT START
*FETCH
FETCH RETURN
COLOUR A
COLOUR B
*RESET
TIMING PULSE
THERMISTA I
GND
CN18 2P/H (I)
(See Page 83)
TO VA-69 BOARD CN601
VD
SYNC GET
MONITOR SELECT
*EE/THRU
CS (CRTC)
SDATA (CRTC)
SCLK (CRTC)
YM (V7040)
GND
CN19 2P/H (I)
S2 TEST
IC6 SN74HC574NS LATCH
IC4 (1/4) SN74HC32NS OR GATE
IC7 SN74HC574NS
IC4 (2/4) SN74HC32NS OR GATE
IC3 SN74HC139NS DECODER
IC8 SN74HC541NS
IC1 TMP91C640F-22575 1-CHIP CPU
STAND-BY 5V
POWER ON LED
STAND-BY LED
*POWER SWITCH
N.C.
GND
CN20 2P/H (I)
TO CK-55 BOARD W307
(See Page 139)
S1 RESET
IC5 PST523C RESET IC
IC9 SN74HC574NS LATCH
IC4 (3/4) SN74HC32NS OR GATE
IC4 (4/4) SN74HC32NS OR GATE
FLD.A LED
FLD.B LED
REMORT CONTROL
BUZZER
GND
CN23 2P/H (I)
5V
IND.ENABLE
IND.UP
WARN.LED
ERROR LED
GND
CN22 2P/H (I)
TO CK-55 BOARD W305
(See Page 139)
5V
KEY A
KEY B
GND
CN21 2P/H (I)
TO KY-12 BOARD W2
(See Page 137)
no mark : CAPTURE SW ON (S2)

KY-12 (FUNCTION SWITCH), CK-51 (BOARD LINK), CK-54 (BOARD LINK), CK-55 (BOARD LINK), PW-97 (POWER SWITCH) SCHEMATIC DIAGRAMS

— Ref. No. CK-51, CK-54, PW-97 BOARDS: 3000 series, CK-55 BOARD: 5000 series, KY-12 BOARD: 6000 series —

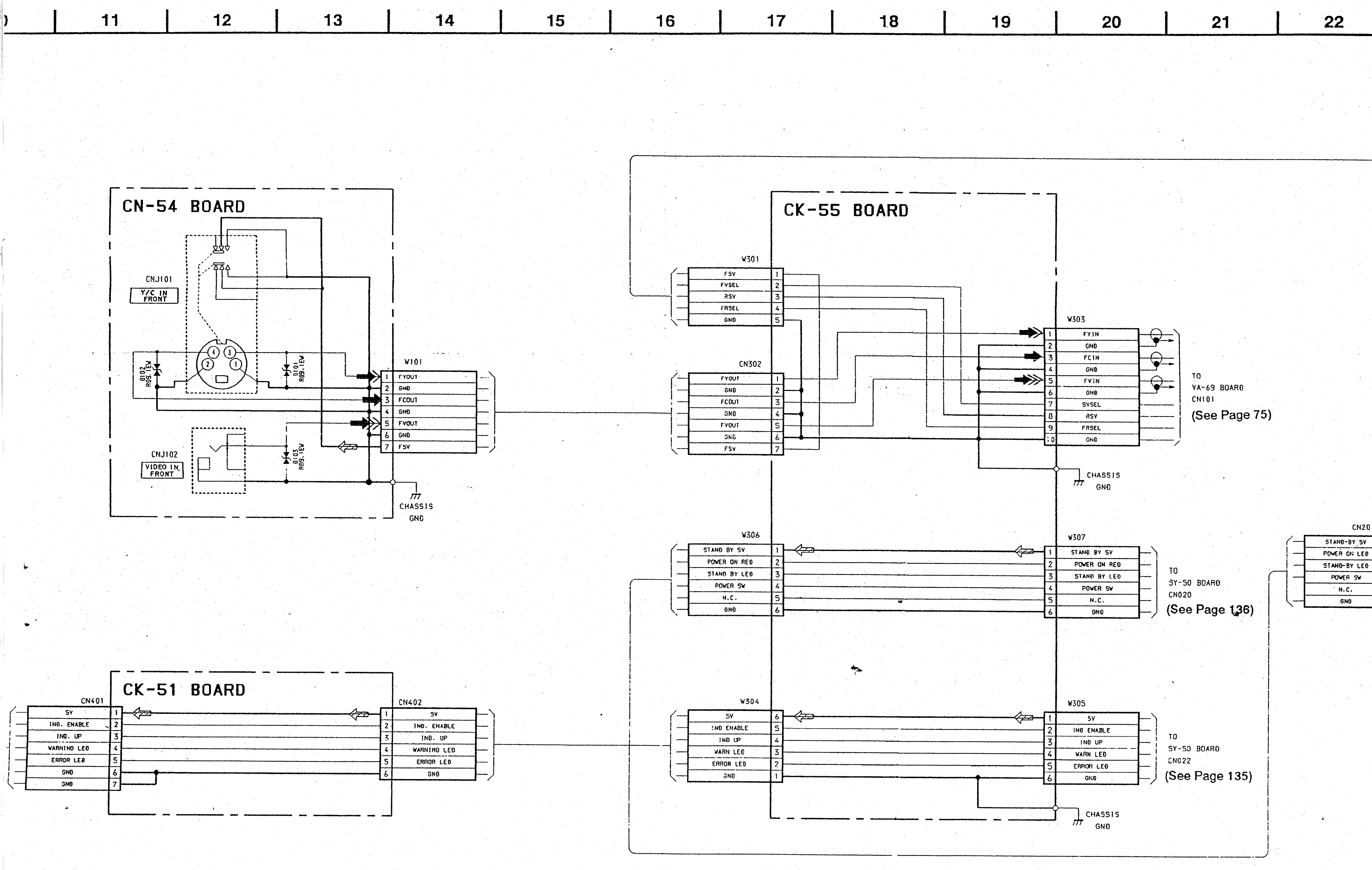


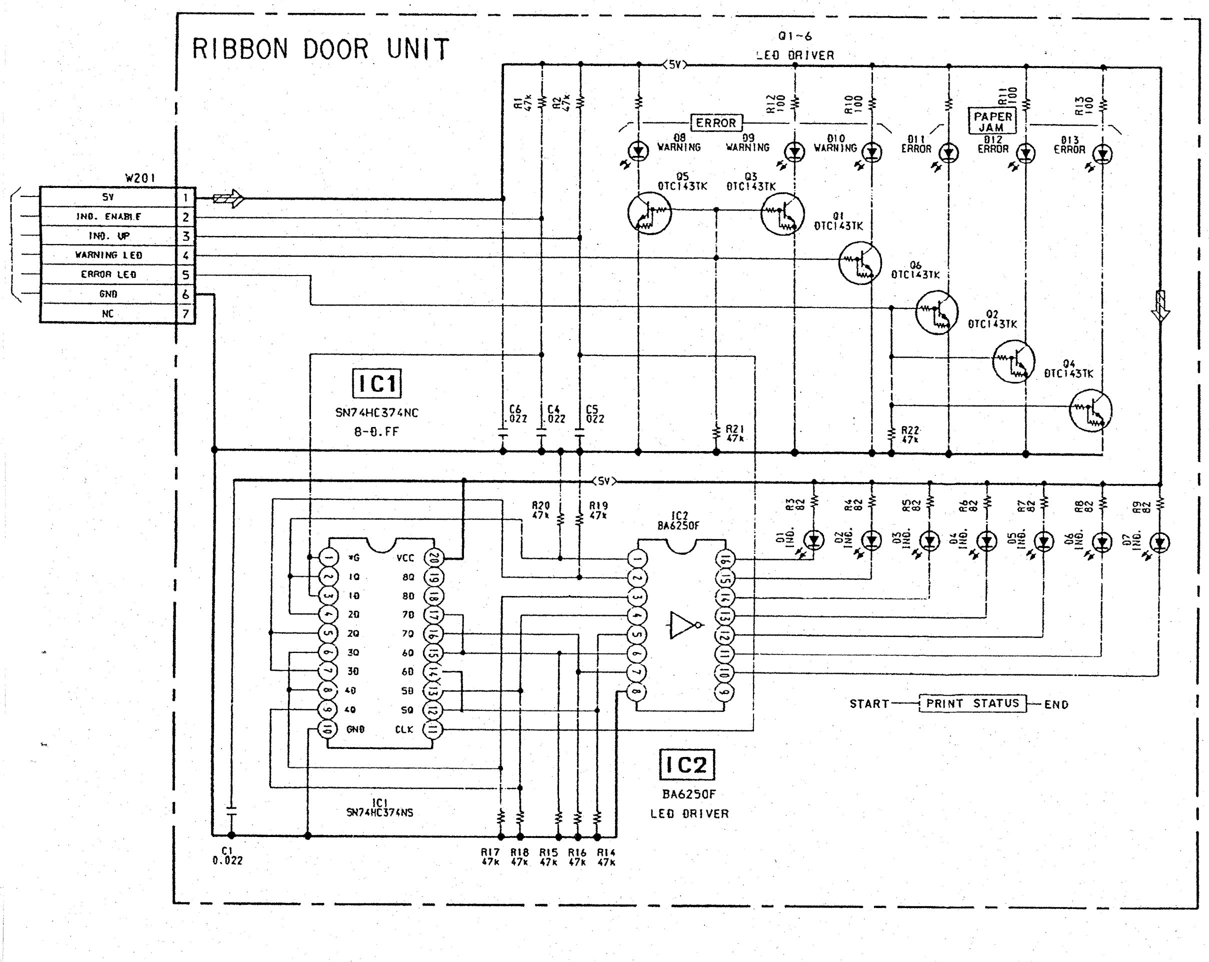
KY-12 BOARD
CONTROL SWITCH BLOCK
CN-54
CK-51
RIBBON
TO SY-50 BOARD CN023
(See Page 135)
TO SY-50 BOARD CN021
(See Page 136)
TO VA-69 BOARD CN402
STAND-BY 5V
PRINT KEY
FETCH KEY
MONITOR SELECT KEY
FIELD SELECT KEY
MONITOR LED
FRAME LED
FIELD A LED
FIELD B LED
REMORT CONTROL
BUZZER
GND
W2
5V
KEY A
KEY B
AGC ON
COMMON
AGC OFF
ANALOGUE GND
W3
KEY1
KEY2
CAPTURE
PRINT
CAPTURE MODE
MONITOR MEMORY
S1 PRINT
S2 FETCH
S3 MON.SEL
S4 FRM/FLD
IC2 SBX1619-51 REMOTE RECEIVER
Q2 DTC114 BUFFER
Q3 2SC1623
Q1 DTA114EK BUZZER SWITCH
IC3 μPC1555 OSCILATER
IC1 BA6250F LED DRIVER
D1 LD-701DU
D2 LD-001MG
D3 LD-001MG
D4 LD-001MG
MONITOR MEMORY
FRAME
FIELDA
FIELDB
BZ1 KBS130B
CHASSIS GND
S1 UP
S2 DOWN
S3 LEFT
S4 RIGHT
S5 YES
S6 NO
S7 DEMO
S8 OFF
S10 MENO
DEMONSTRATION
MENU
CAPTION ON/OFF
YES
NO
S9 AGC ON OFF
AUTO PICTURE
D1 RD9.1MB2
D2 RD9.1MB2
D3 RD9.1MB2
CN401
W201
IND. ENABLE
IND. UP
WARNING LED
ERROR LED
NC
CNJ101 Y/C IN FRONT
CNJ102 VIDEO IN FRONT
D102 RD9.1EW


11
12
13
14
15
16
17
18
19
20
21
22
23
CN-54 BOARD
CNJ101
Y/C IN FRONT
CNJ102
VIDEO IN FRONT
D102 RD9.1EW
D101 RD9.1EW
D103 RD9.1EW
W101
FYOUT
GND
FCOUT
GND
FVOUT
GND
FSV
CHASSIS GND
CK-51 BOARD
CN402
5V
IND. ENABLE
IND. UP
WARNING LED
ERROR LED
GND
CK-55 BOARD
W301
FSV
FVSEL
RSV
FRSEL
GND
CN302
FYOUT
GND
FCOUT
GND
FVOUT
GND
FSV
W303
FYIN
GND
FCIN
GND
FVIN
GND
SVSEL
RSY
FRSEL
GND
TO VA-69 BOARD CN101
(See Page 75)
CHASSIS GND
W306
STAND BY 5V
POWER ON REQ
STAND BY LED
POWER SW
N.C.
GND
W307
STAND BY 5V
POWER ON REQ
STAND BY LED
POWER SW
N.C.
GND
TO SY-50 BOARD CN020
(See Page 136)
W304
5V
IND ENABLE
IND UP
WARN LED
ERROR LED
GND
W305
5V
IND ENABLE
IND UP
WARN LED
ERROR LED
GND
TO SY-50 BOARD CN022
(See Page 135)
CHASSIS GND
PW-97
S202 FRONT/RE
INPUT SELECT
CN201
STAND-BY 5V
POWER ON LED
STAND-BY LED
POWER SW
N.C.
GND
RIBBON DOOR UNIT
Q1~6 LED DRIVER
<5V>
R1 47k
R2 47k
R12 100
R10 100
R11 100
R13 100
ERROR
PAPER JAM
D8 WARNING
D9 WARNING
D10 WARNING
D11 ERROR
D12 ERROR
D13 ERROR
Q5 DTC143TK
Q3 DTC143TK
Q1 DTC143TK
Q6 DTC143TK
Q2 DTC143TK
Q4 DTC143TK
IC1
SN74HC374NC
8-D.FF
C6 .022
C4 .022
C5 .022
R21 47k
R22 47k
R20 47k
R19 47k
IC2 BA6250F
D1 IND.
D2 IND.
D3 IND.
D4 IND.
D5 IND.
D6 IND.
D7 IND.
R3 82
R4 82
R5 82
R6 82
R7 82
R8 82
R9 82
START
PRINT STATUS
END
IC1 SN74HC374NS
IC2
BA6250F
LED DRIVER
C1 0.022
R17 47k
R18 47k
R15 47k
R16 47k
R14 47k

- SIGNAL PATH (ANALOG)

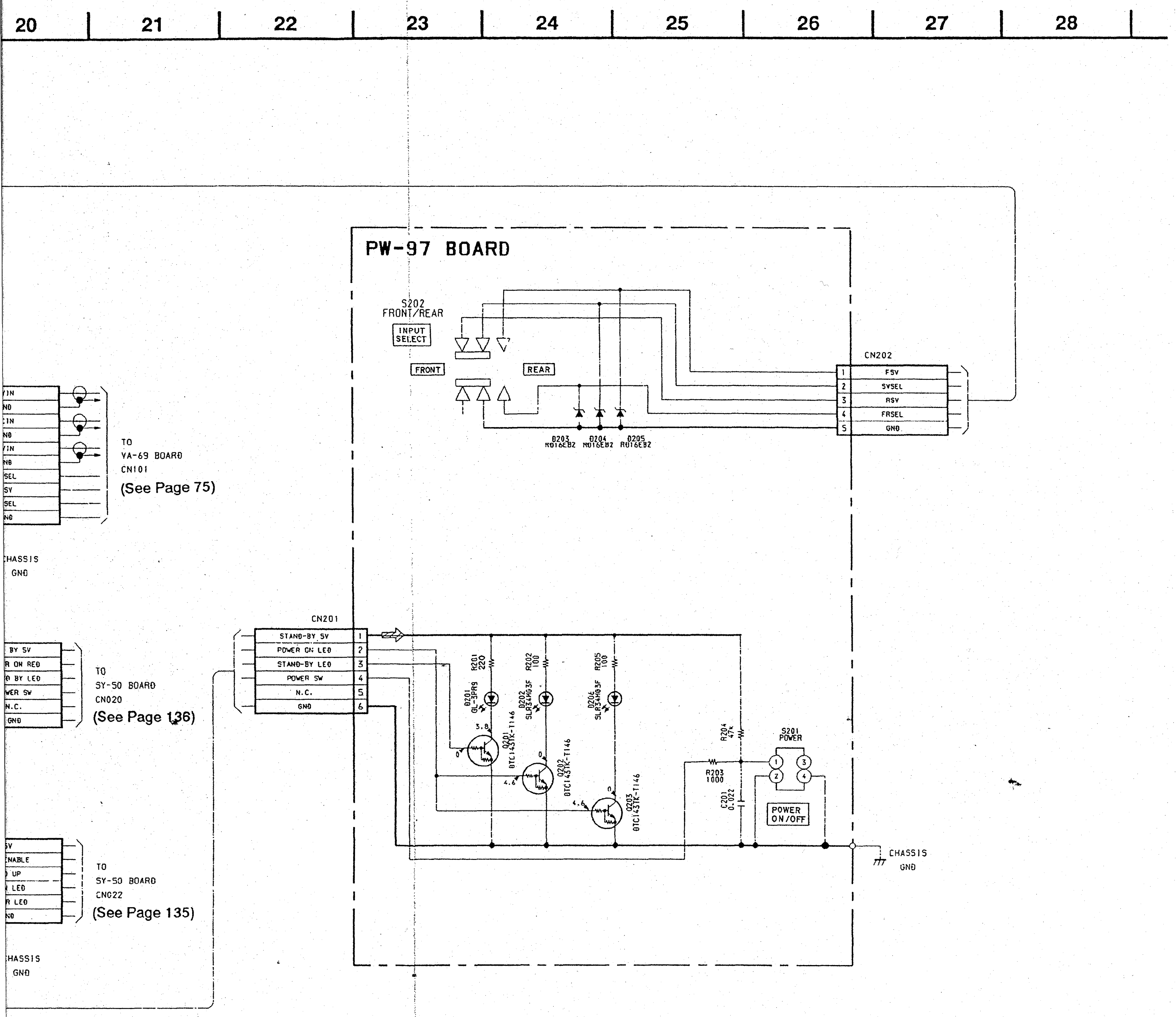
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛	⇛	
PB				


11
12
13
14
15
16
17
18
19
20
21
22
CN-54 BOARD
CNJ101
Y/C IN FRONT
CNJ102
VIDEO IN FRONT
D102 RD9.1EW
D101 RD9.1EW
D103 RD9.1EW
W101
FVOUT
GND
FCOUT
GND
FVOUT
GND
FSV
CHASSIS GND
CK-55 BOARD
W301
FSV
FVSEL
RSV
FRSEL
GND
CN302
FVOUT
GND
FCOUT
GND
FVOUT
GND
FSV
W303
FYIN
GND
FCIN
GND
FVIN
GND
SVSEL
RSV
FRSEL
GND
TO VA-69 BOARD CN101
(See Page 75)
CHASSIS GND
W306
STAND BY 5V
POWER ON REO
STAND BY LED
POWER SW
N.C.
GND
W307
STAND BY 5V
POWER ON REO
STAND BY LED
POWER SW
N.C.
GND
TO SY-50 BOARD CN020
(See Page 136)
CN20
STAND-BY 5V
POWER ON LED
STAND-BY LED
POWER SW
N.C.
GND
CK-51 BOARD
CN401
5V
IND. ENABLE
IND. UP
WARNING LED
ERROR LED
GND
GND
CN402
5V
IND. ENABLE
IND. UP
WARNING LED
ERROR LED
GND
W304
5V
IND ENABLE
IND UP
WARN LED
ERROR LED
GND
W305
5V
IND ENABLE
IND UP
WARN LED
ERROR LED
GND
TO SY-50 BOARD CN022
(See Page 135)
CHASSIS GND


RIBBON DOOR UNIT
Q1~6 LED DRIVER
<5V>
R1 47k
R2 47k
R12 100
R10 100
R11 100
R13 100
ERROR
PAPER JAM
D8 WARNING
D9 WARNING
D10 WARNING
D11 ERROR
D12 ERROR
D13 ERROR
Q5 DTC143TK
Q3 DTC143TK
Q1 DTC143TK
Q6 DTC143TK
Q2 DTC143TK
Q4 DTC143TK
W201
5V
IND. ENABLE
IND. UP
WARNING LED
ERROR LED
GND
NC
IC1
SN74HC374NC
8-B.FF
C6 .022
C4 .022
C5 .022
R21 47k
R22 47k
R20 47k
R19 47k
IC2 BA6250F
R3 82
R4 82
R5 82
R6 82
R7 82
R8 82
R9 82
D1 IND.
D2 IND.
D3 IND.
D4 IND.
D5 IND.
D6 IND.
D7 IND.
*G
1Q
1D
2D
2Q
3Q
3D
4D
4Q
GND
VCC
8Q
8D
7D
7Q
6Q
6D
5D
5Q
CLK
START
PRINT STATUS
END
IC1 SN74HC374NS
C1 0.022
R17 47k
R18 47k
R15 47k
R16 47k
R14 47k
IC2
BA6250F
LED DRIVER

- SIGNAL PATH (ANALOG)

	VIDEO SIGNAL			AU SIG
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛	⭆	
PB				


20
21
22
23
24
25
26
27
28
PW-97 BOARD
S202
FRONT/REAR
INPUT SELECT
FRONT
REAR
D203
RU16EB2
D204
RU16EB2
D205
RU16EB2
CN202
FSV
SVSEL
RSV
FRSEL
GND
CN201
STAND-BY 5V
POWER ON LED
STAND-BY LED
POWER SW
N.C.
GND
R201
220
R202
100
R205
100
D201
GL-3PR9
D202
SLR34MG3F
D206
SLR34MG3F
Q201
DTC143TK-T146
Q202
DTC143TK-T146
Q203
DTC143TK-T146
3.8
0
4.6
R204
47k
R203
1000
C201
0.022
S201
POWER
POWER ON/OFF
CHASSIS
GND
TO
VA-69 BOARD
CN101
(See Page 75)
TO
SY-50 BOARD
CN020
(See Page 136)
TO
SY-50 BOARD
CN022
(See Page 135)
CHASSIS
GND

NAL PATH (ANALOG)

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
C	➡	➡➡	➡➡➡	

KY-12 (FUNCTION SWITCH), CK-51 (BOARD LINK), CK-54 (BOARD LINK), CK-55 (BOARD LINK), PW-97 (POWER SWITCH) PRINTED WIRING BOARDS

— Ref. No. CK-51, CK-54, PW-97 BOARDS: 3000 series, CK-55 BOARD: 5000 series, KY-12 BOARD: 6000 series —

(DIODE)

D001	8-719-018-50	DIODE	LD-701DU
D002	8-719-948-07	LED	LD-001MG
D003	8-719-948-07	LED	LD-001MG
D004	8-719-948-07	LED	LD-001MG

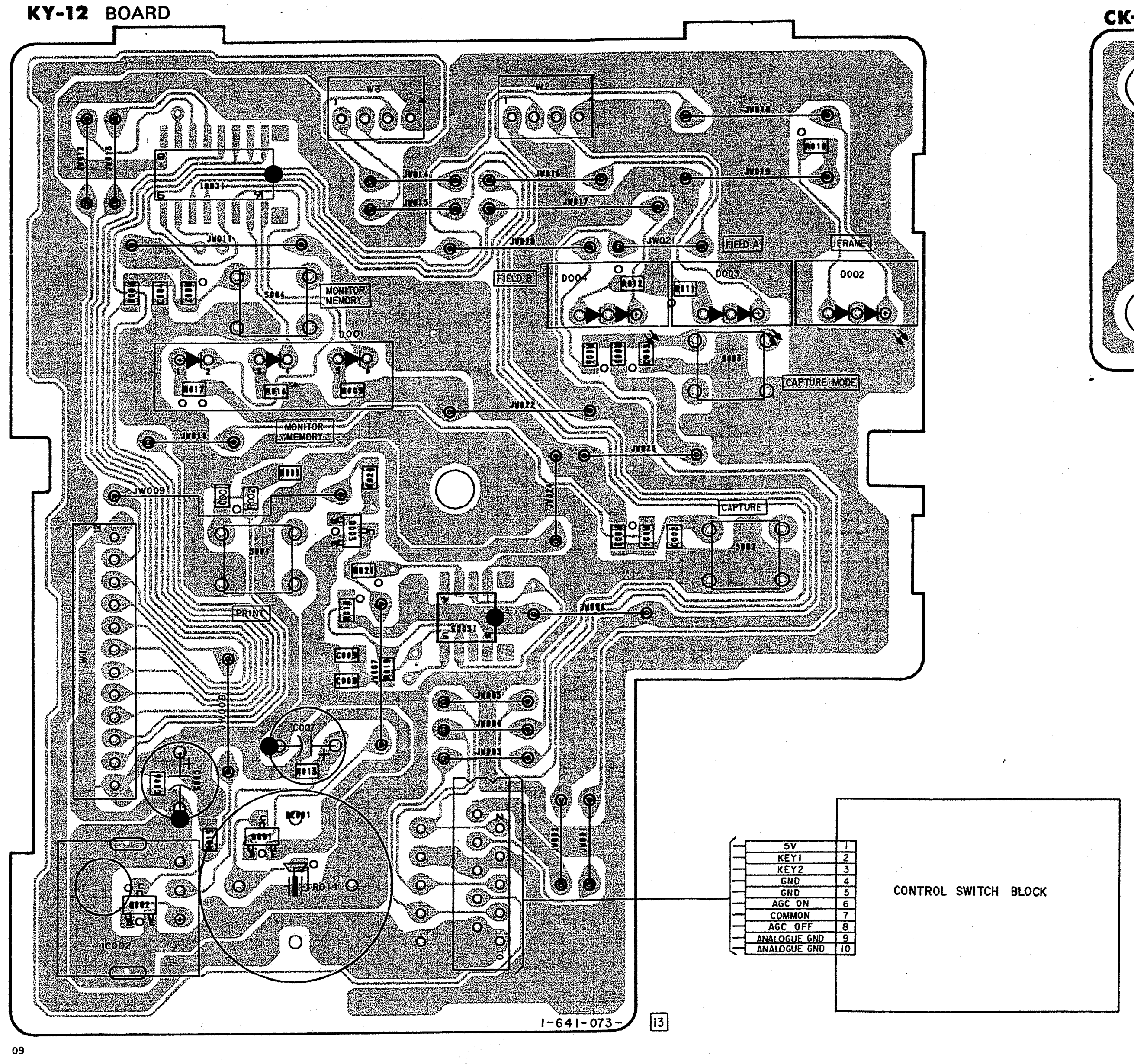
(IC)

IC001	8-759-987-65	IC	BA6250F
IC002	8-741-100-63	IC	SBX1619-51
IC003	8-759-144-85	IC	uPC1555G2

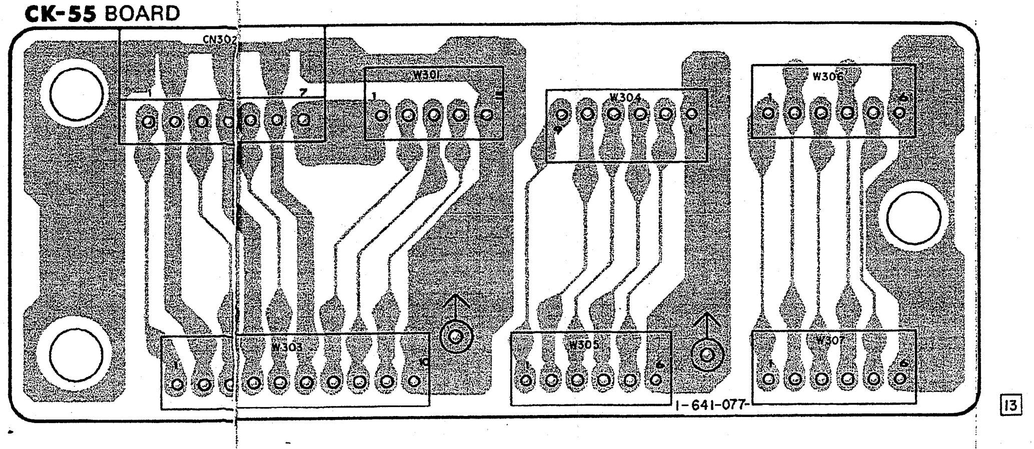
(TRANSISTOR)

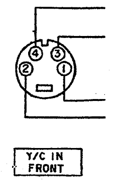
Q001	8-729-901-04	TRANSISTOR	DTA114EK
Q002	8-729-900-53	TRANSISTOR	DTC114EK
Q003	8-729-120-28	TRANSISTOR	2SC1623-L5L6

KY-12 BOARD

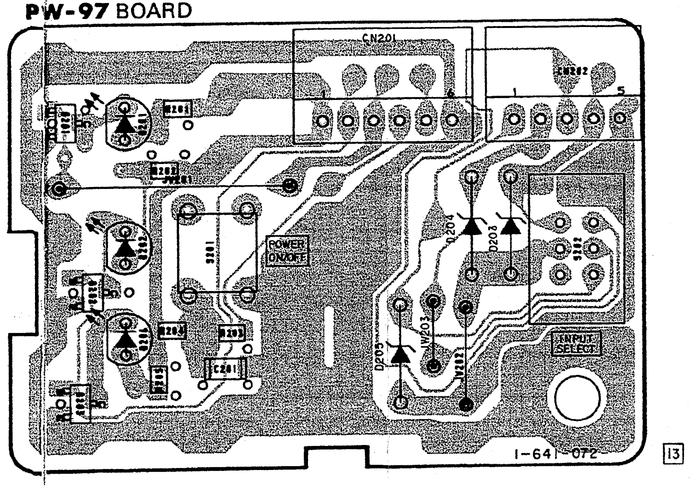

W3
W2
JW018
JW019
FIELD A
FIELD B
FRAME
D002
D003
D004
MONITOR MEMORY
CAPTURE MODE
CAPTURE
IC001
IC002
IC003
5V 1
KEY1 2
KEY2 3
GND 4
GND 5
AGC ON 6
COMMON 7
AGC OFF 8
ANALOGUE GND 9
ANALOGUE GND 10
CONTROL SWITCH BLOCK
1-641-073-
13
09

CK-55 BOARD


CN302
W301
W304
W306
W303
W305
W307
1-641-077-
13



PW-97 BOARD


CN201
CN202
POWER ON/OFF
INPUT SELECT
D203
D204
D205
1-641-072
13

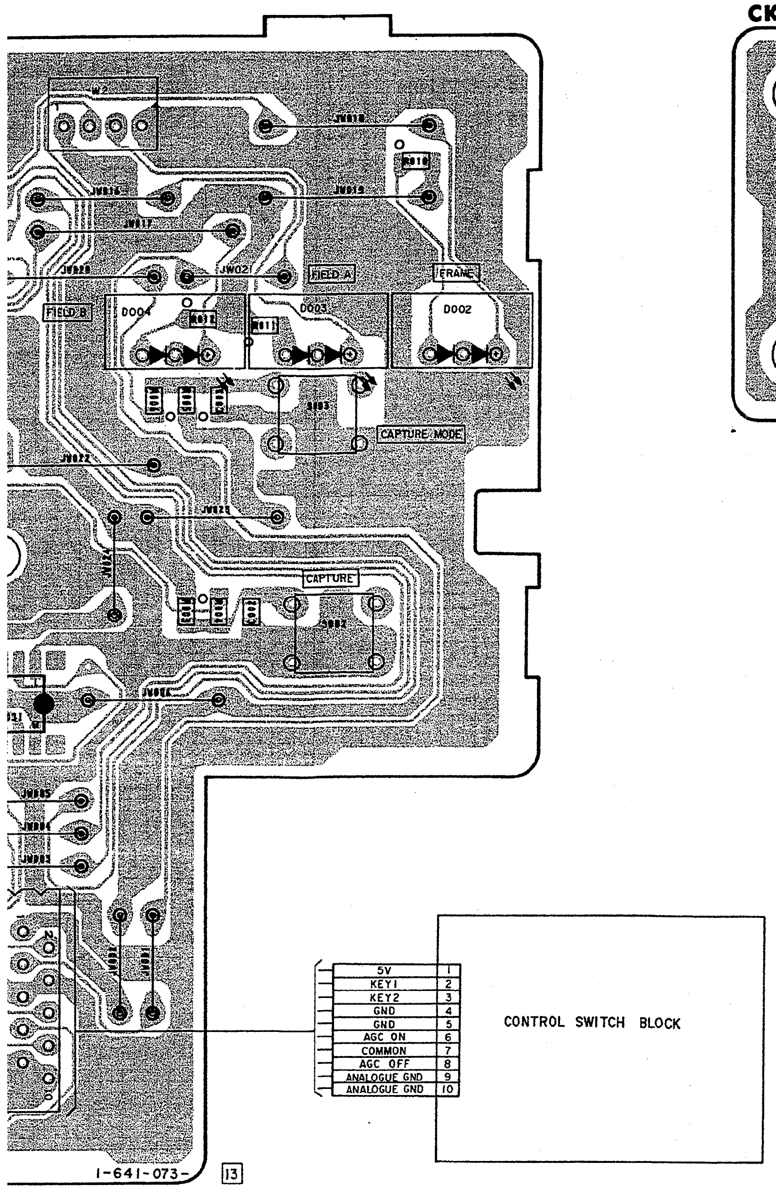
(DIODE)

D201	8-719-918-76	LED	GL-3PR9
D202	8-719-018-97	DIODE	GL3KG43
D203	8-719-110-49	DIODE	RD18ES-B2
D204	8-719-110-49	DIODE	RD18ES-B2
D205	8-719-110-49	DIODE	RD18ES-B2
D206	8-719-018-97	DIODE	GL3KG43

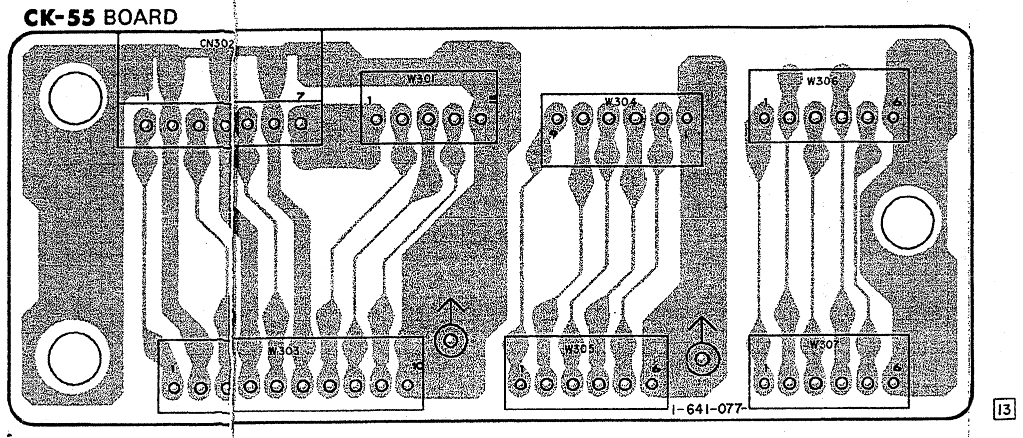
(TRANSISTOR)

Q201	8-729-900-98	TRANSISTOR	DTC143TK
Q202	8-729-900-98	TRANSISTOR	DTC143TK
Q203	8-729-900-98	TRANSISTOR	DTC143TK

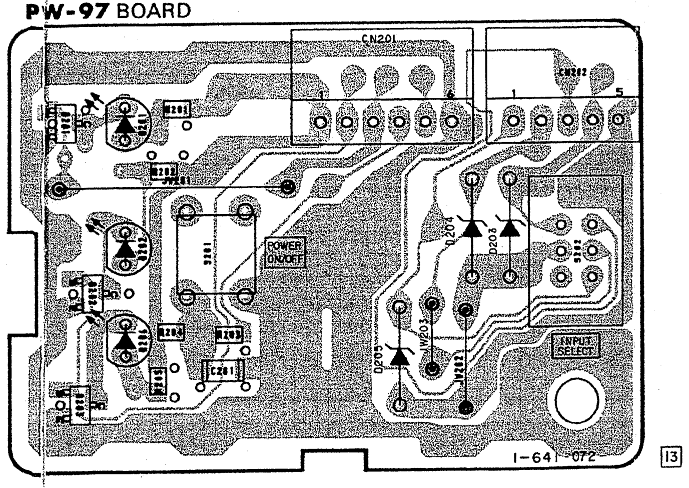
LINK), PW-97 (POWER SWITCH) PRINTED WIRING BOARDS


W2
JW018
JW019
JW017
JW020
JW021
FIELD A
FRAME
FIELD B
D004
D003
D002
CAPTURE MODE
JW022
CAPTURE
JW004
5V 1
KEY1 2
KEY2 3
GND 4
GND 5
AGC ON 6
COMMON 7
AGC OFF 8
ANALOGUE GND 9
ANALOGUE GND 10
CONTROL SWITCH BLOCK
1-641-073-
13

CK-55 BOARD


CN302
W301
W304
W306
W303
W305
W307
1-641-077-
13

PW-97 BOARD


CN201
CN202
POWER ON/OFF
INPUT SELECT
1-641-072-
13

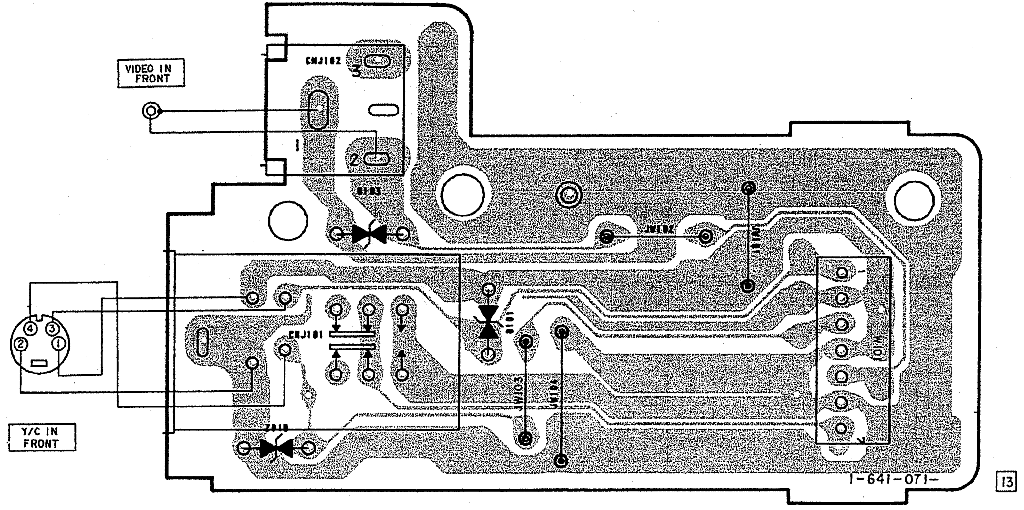
(DIODE)

D201	8-719-918-76	LED	GL-3PR9
D202	8-719-018-97	DIODE	GL3KG43
D203	8-719-110-49	DIODE	RD18ES-B2
D204	8-719-110-49	DIODE	RD18ES-B2
D205	8-719-110-49	DIODE	RD18ES-B2
D206	8-719-018-97	DIODE	GL3KG43

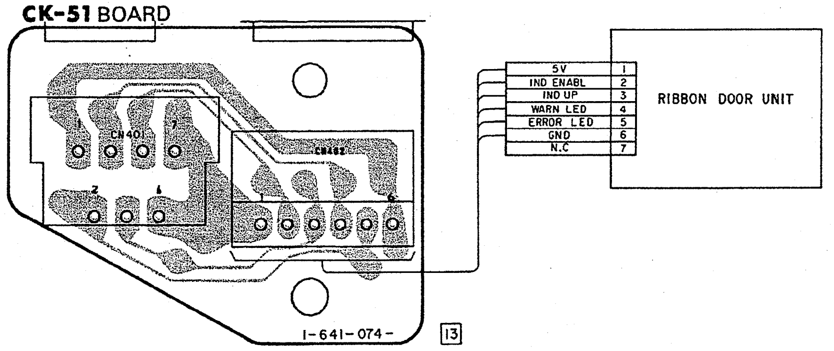
(TRANSISTOR)

Q201	8-729-900-98	TRANSISTOR	DTC143TK
Q202	8-729-900-98	TRANSISTOR	DTC143TK
Q203	8-729-900-98	TRANSISTOR	DTC143TK

CN-54 BOARD


VIDEO IN FRONT
CNJ102
CNJ101
D103
JW102
Y/C IN FRONT
1-641-071-
13

CK-51 BOARD


CN401
CN402
5V 1
IND ENABL 2
IND UP 3
WARN LED 4
ERROR LED 5
GND 6
N.C 7
RIBBON DOOR UNIT
1-641-074-
13

POWER BLOCK PRINTED WIRING BOARD

— Ref. No. POWER BLOCK: 6000 series —

⟨ DIODE ⟩

D001	9-901-768-01	DIODE	D5SB60
D002	8-719-018-43	DIODE	RGIC
D003	9-901-772-01	DIODE	ISS178
D004	8-719-974-84	DIODE	ERA91-02
D005	8-719-110-75	DIODE	RD33ESAB
D006	8-719-110-75	DIODE	RD33ESAB
D007	8-719-974-84	DIODE	ERA91-02
D101	9-901-771-01	DIODE	ESAD92M-03
D102	8-719-974-84	DIODE	ERA91-02
D103	8-719-913-44	DIODE	ERA82-004
D104	9-901-772-01	DIODE	ISS178
D105	9-901-772-01	DIODE	ISS178
D106	9-901-772-01	DIODE	ISS178
D107	9-901-772-01	DIODE	ISS178
D108	8-719-110-65	DIODE	RD27ESAB
D109	9-901-772-01	DIODE	ISS178
D110	9-901-772-01	DIODE	ISS178
D201	8-719-920-31	DIODE	ERA15-01
D202	9-901-770-01	DIODE	ESAB92M-02
D203	9-901-772-01	DIODE	ISS178
D204	9-901-772-01	DIODE	ISS178
D301	8-719-920-31	DIODE	ERA15-01
D302	9-901-772-01	DIODE	ISS178
D303	9-901-770-01	DIODE	ESAB92M-02
D401	9-901-772-01	DIODE	ISS178
D402	8-719-109-85	DIODE	RD5.6ESAB
D501	8-719-110-15	DIODE	RD10ESAB
D502	9-901-772-01	DIODE	ISS178
D601	9-901-772-01	DIODE	ISS178
D701	9-901-772-01	DIODE	ISS178
D702	8-719-110-34	DIODE	RD13ESAB
D801	9-901-772-01	DIODE	ISS178

⟨ IC ⟩

IC001	9-901-774-01	IC	M51995P
IC101	8-759-711-96	IC	NJM431L
IC102	8-759-135-80	IC	uPC358C
IC103	8-759-711-96	IC	NJM431L
IC201	8-759-937-59	IC	MB3759M
IC301	8-759-937-59	IC	MB3759M
IC401	8-759-701-56	IC	NJM78M05FA
IC501	8-759-701-78	IC	NJM7809FA
IC601	9-901-775-01	IC	PQ12RH1
IC701	9-901-775-01	IC	PQ12RH1
IC801	8-759-506-12	IC	PQ12RF1

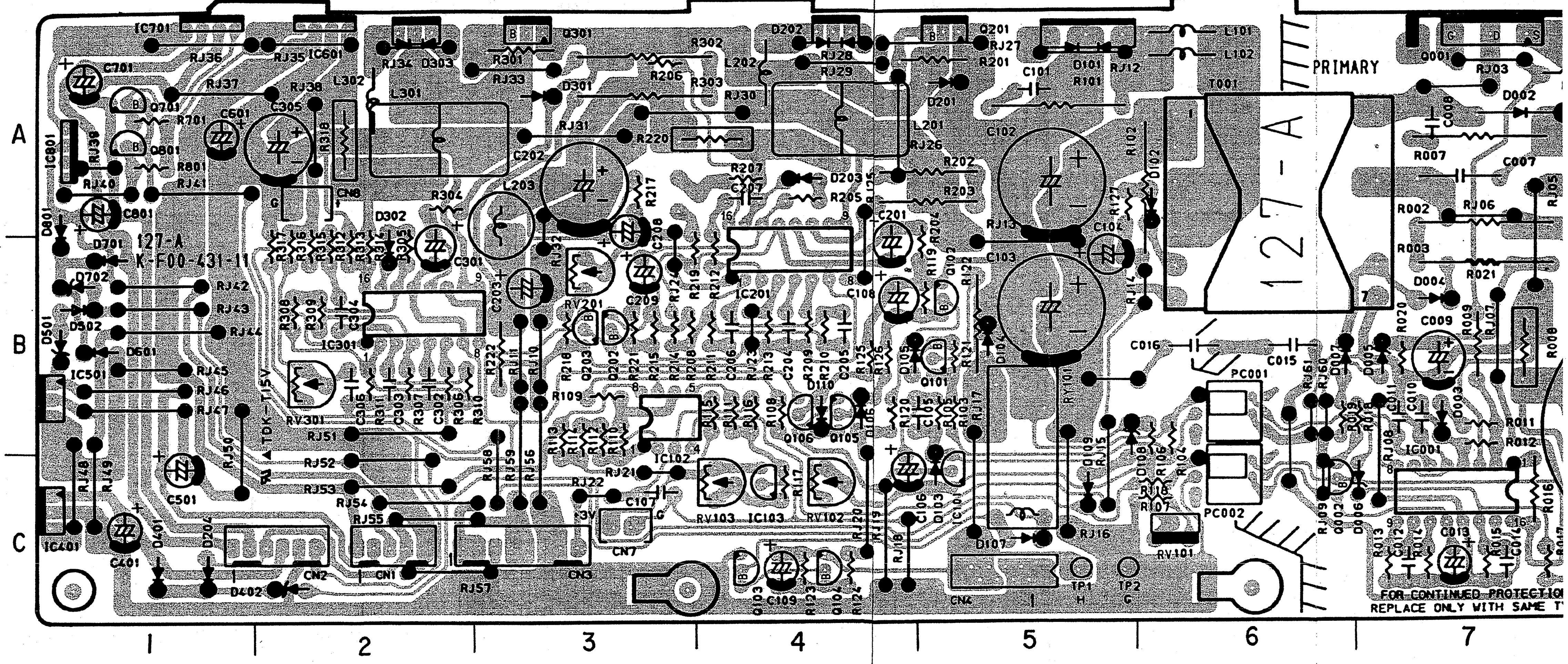
POWER BLOCK

CN001	C-2
CN002	C-2
CN003	C-3
CN004	C-5
D001	A-8
D002	A-7
D003	B-7
D004	B-7
D005	B-7
D006	C-7
D007	B-6
D101	A-5
D102	B-6
D103	C-5
D104	B-5
D105	B-4
D106	B-4
D107	C-5
D108	B-5
D109	C-5
D110	B-4
D201	A-5
D202	A-4
D203	A-4
D204	C-1
D301	A-3
D302	B-2
D303	A-2
D401	C-1
D402	C-2
D501	B-1
D502	B-1
D601	B-1
D701	B-1
D702	B-1
D801	B-1
IC001	C-7
IC101	C-5
IC102	B-3
IC103	C-4
IC201	B-4
IC301	B-2
IC401	C-1
IC501	B-1
IC601	A-2
IC701	A-1
IC801	A-1
Q001	A-7
Q002	C-6
Q101	B-5
Q102	B-5
Q103	C-4
Q104	C-4
Q105	B-4
Q106	B-4
Q201	A-5
Q202	B-3
Q203	B-3
Q301	A-3
Q701	A-1
Q801	A-1
RV101	C-6
RV102	C-4
RV103	C-4
RV201	B-3
RV301	B-2

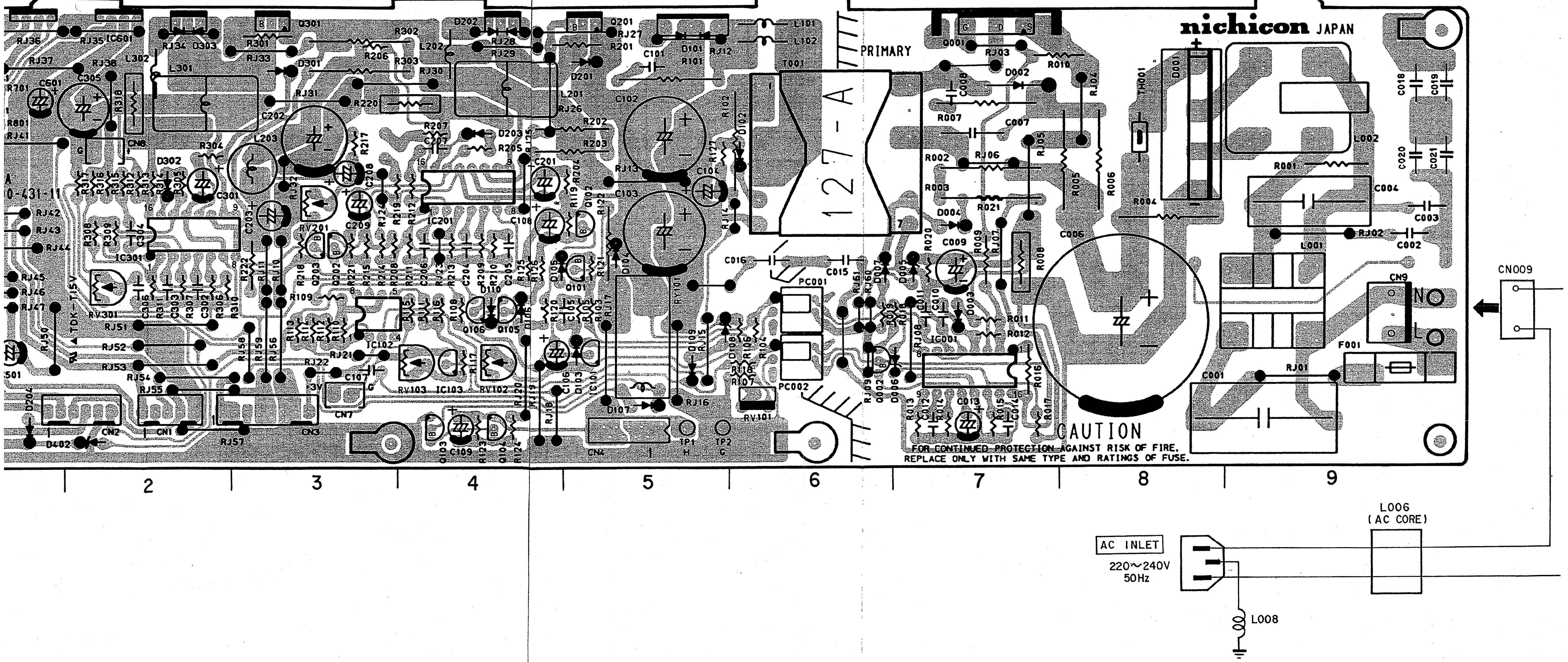
⟨ TRANSISTOR ⟩

Q001	9-902-914-01	FET	2SK1082
Q002	8-729-281-59	TRANSISTOR	2SC1815
Q101	8-729-202-43	TRANSISTOR	2SA1020
Q102	8-729-201-59	TRANSISTOR	2SA1015
Q103	9-901-781-01	TRANSISTOR	RN1001
Q104	8-729-201-59	TRANSISTOR	2SA1015
Q105	9-901-781-01	TRANSISTOR	RN1001
Q106	9-901-781-01	TRANSISTOR	RN1001
Q201	9-901-783-01	TRANSISTOR	2SA1451
Q202	9-901-782-01	TRANSISTOR	RN2001
Q203	9-901-781-01	TRANSISTOR	RN1001
Q301	9-901-783-01	TRANSISTOR	2SA1451
Q701	9-901-781-01	TRANSISTOR	RN1001
Q801	9-901-781-01	TRANSISTOR	RN1001

SWITCHING POWER BLOCK BOARD


A
B
C
1
2
3
4
5
6
7
IC701
IC601
IC801
IC501
IC401
IC301
IC201
IC102
IC103
IC101
IC001
Q001
Q201
Q301
Q701
Q801
L101
L102
L201
L202
L203
L301
L302
T001
PRIMARY
127-A
K-F00-431-11
PC001
PC002
RV101
RV102
RV103
RV201
RV301
CN1
CN2
CN3
CN4
CN6
CN7
TP1
TP2
FOR CONTINUED PROTECTION
REPLACE ONLY WITH SAME T

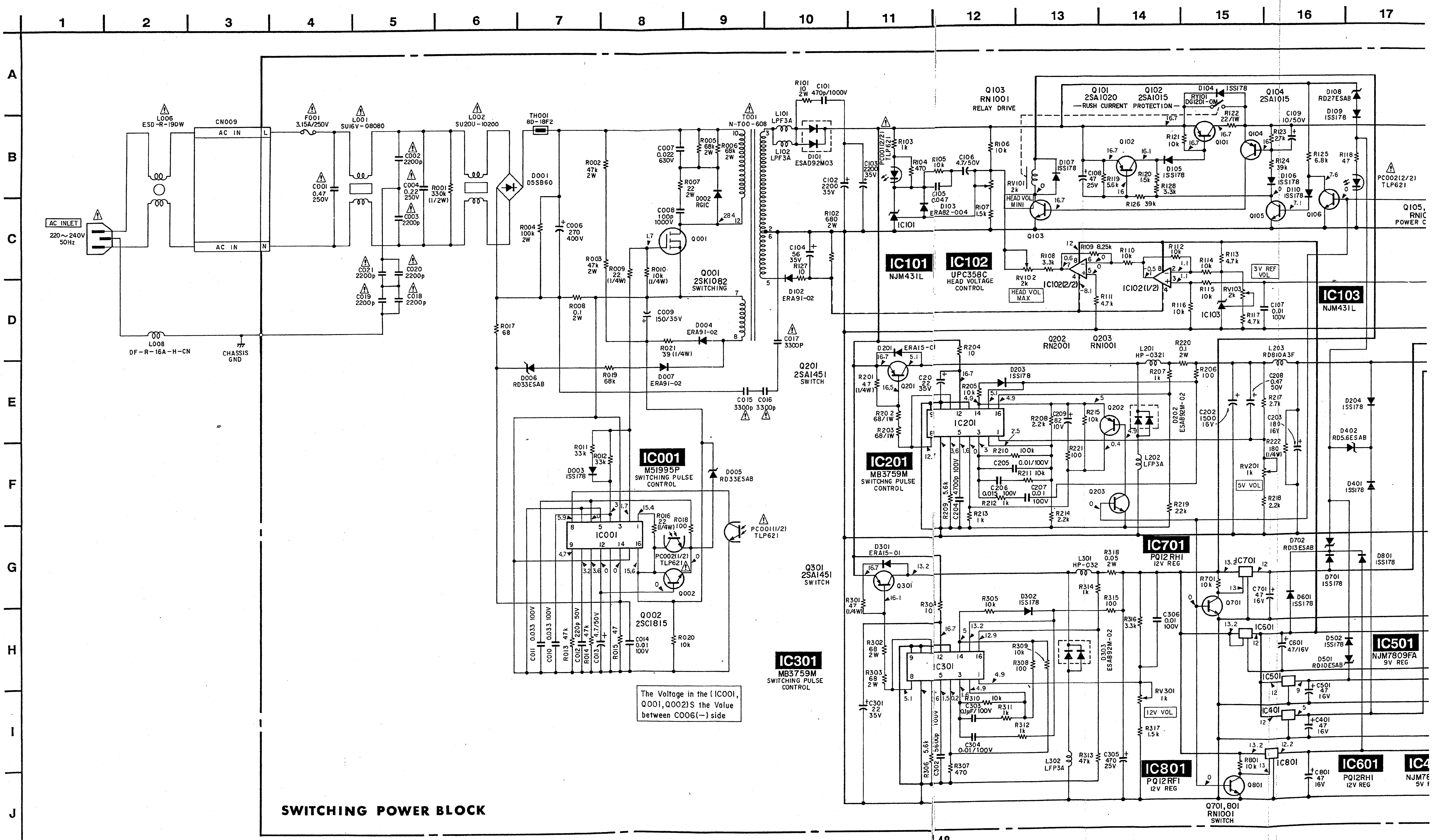
ING POWER BLOCK BOARD


nichicon JAPAN
PRIMARY
127-A
CAUTION
FOR CONTINUED PROTECTION AGAINST RISK OF FIRE.
REPLACE ONLY WITH SAME TYPE AND RATINGS OF FUSE.
TDK-T15V
IC601
IC301
IC201
IC102
IC103
IC001
T001
PC001
PC002
Q001
Q101
Q201
Q301
D001
D002
TH001
F001
CN009
CN9
CN1
CN2
CN3
CN4
CN7
CN8
RV101
RV102
RV103
RV201
RV301
TP1
TP2
L001
L002
L101
L102
L201
L202
L203
L301
L302
C001
C002
C003
C004
C006
C102
C103
L006
(AC CORE)
AC INLET
220~240V
50Hz
L008
2
3
4
5
6
7
8
9

POWER **POWER**

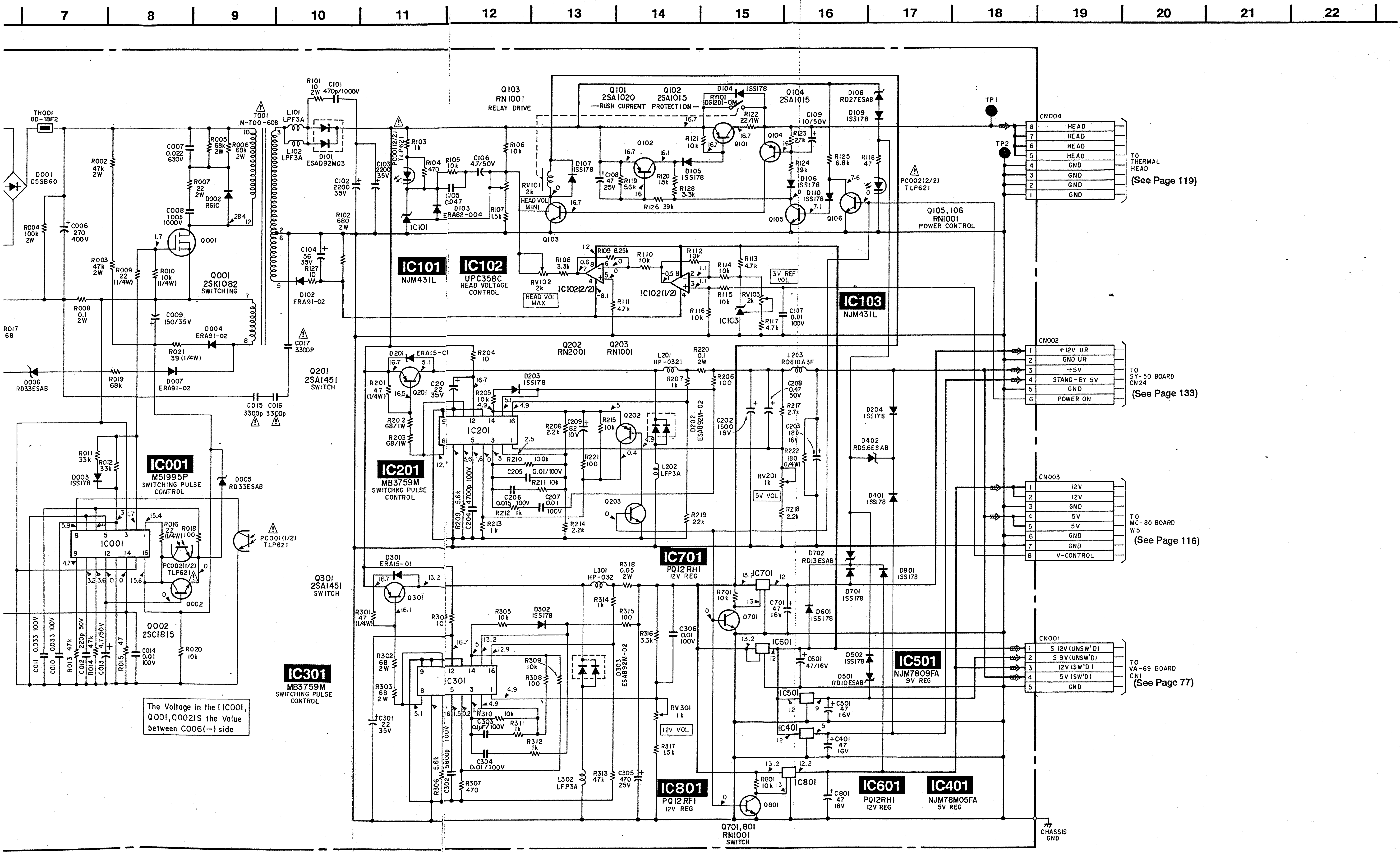
POWER BLOCK SCHEMATIC DIAGRAM

— Ref. No. POWER BLOCK: 6000 series —



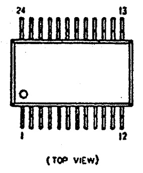
SWITCHING POWER BLOCK
AC INLET
220～240V 50Hz
L006 ESD-R-19DW
CN009
AC IN
L008 DF-R-16A-H-CN
CHASSIS GND
F001 3.15A/250V
L001 SU16V-08080
C001 0.47 250V
C002 2200p
C004 0.22 250V
C003 2200p
R001 330k (1/2W)
C021 2200p
C020 2200p
C019 2200p
C018 2200p
L002 SU20U-10200
TH001 8D-18F2
D001 D5SB60
C006 270 400V
R004 100k 2W
R002 47k 2W
R003 47k 2W
R017 68
R008 0.1 2W
R009 22 (1/4W)
R010 10k (1/4W)
Q001 2SK1082 SWITCHING
C007 0.022 630V
R005 68k 2W
R006 68k 2W
R007 22 2W
D002 RGIC
C008 100p 1000V
T001 N-T00-608
C009 150/35V
D004 ERA91-02
R021 39 (1/4W)
D006 RD33ESAB
R019 68k
D007 ERA91-02
C015 3300p
C016 3300p
C017 3300P
R011 33k
R012 33k
D003 1SS178
IC001 M51995P SWITCHING PULSE CONTROL
D005 RD33ESAB
PC001(1/2) TLP621
R016 22 (1/4W)
R018 100
PC002(1/2) TLP621
Q002 2SC1815
C011 0.033 100V
C010 0.033 100V
R013 47k
C012 220p 50V
R014 47k
C013 4.7/50V
R015 47
C014 0.01 100V
R020 10k
R101 10 2W
C101 470p/1000V
L101 LPF3A
L102 LPF3A
D101 ESAD92M03
C102 2200 35V
C103 2200 35V
R102 680 2W
C104 56 35V
R127 10
D102 ERA91-02
Q201 2SA1451 SWITCH
Q301 2SA1451 SWITCH
IC301 MB3759M SWITCHING PULSE CONTROL
PC001(2/2) TLP621
R103 1k
R104 470
R105 10k
C106 47/50V
C105 0.047
D103 ERA82-004
R107 1.5k
IC101 NJM431L
IC102 UPC358C HEAD VOLTAGE CONTROL
Q103 RN1001 RELAY DRIVE
R106 10k
RV101 2k
HEAD VOL MINI
RV102 2k
HEAD VOL MAX
R108 3.3k
R109 8.25k
R110 10k
R111 4.7k
IC102(2/2)
IC102(1/2)
R112 10k
R113 4.7k
R114 10k
R115 10k
R116 10k
RV103 2k
R117 4.7k
C107 0.01 100V
3V REF VOL
IC103 NJM431L
Q101 2SA1020
Q102 2SA1015
RUSH CURRENT PROTECTION
D104 1SS178
RY101 DG12D1-0M
R122 22/1W
Q104 2SA1015
C109 10/50V
R123 27k
R124 39k
D106 1SS178
D110 1SS178
D107 1SS178
C108 47 25V
R119 5.6k
R120 1.5k
D105 1SS178
R128 3.3k
R126 39k
R121 10k
R125 6.8k
R118 47
D108 RD27ESAB
D109 1SS178
PC002(2/2) TLP621
Q105 Q106
Q105, RN1 POWER C
IC201 MB3759M SWITCHING PULSE CONTROL
D201 ERA15-01
R201 47 (1/4W)
R202 68/1W
R203 68/1W
C201 22 35V
R204 10
D203 1SS178
R205 10k
R208 2.2k
C209 82 10V
R215 10k
Q202 RN2001
Q203 RN1001
R210 100k
C205 0.01/100V
R211 10k
C206 0.015 100V
C207 0.01 100V
R212 1k
R213 1k
R214 2.2k
R209 5.6k
C204 4700p 100V
R221 100
L201 HP-0321
R220 0.1 2W
R207 1k
R206 100
D202 ESAB92M-02
L202 LFP3A
R219 22k
L203 RD810A3F
C202 1500 16V
C208 0.47 50V
R217 2.7k
C203 180 16V
R222 180 (1/4W)
RV201 1k
5V VOL
R218 2.2k
D204 1SS178
D402 RD5.6ESAB
D401 1SS178
D301 ERA15-01
R301 47 (1/4W)
R302 68 2W
R303 68 2W
C301 22 35V
R304 10
R305 10k
D302 1SS178
R309 10k
R308 100
IC301
R310 10k
C303 0.1µF/100V
R311 1k
R312 1k
C304 0.01/100V
R306 5.6k
C302 5600p 100V
R307 470
L301 HP-032
R318 0.05 2W
R314 1k
R315 100
D303 ESAB92M-02
R316 3.3k
C306 0.01 100V
RV301 1k
12V VOL
R317 1.5k
L302 LFP3A
R313 47k
C305 470 25V
IC701 PQ12RH1 12V REG
IC801 PQ12RF1 12V REG
R701 10k
Q701
C701 47 16V
D601 1SS178
D702 RD13ESAB
D701 1SS178
D801 1SS178
IC601
C601 47/16V
D502 1SS178
D501 RD10ESAB
IC501 NJM7809FA 9V REG
C501 47 16V
IC401
C401 47 16V
R801 10k
IC801
C801 47 16V
Q801
Q701, 801 RN1001 SWITCH
IC601 PQ12RH1 12V REG
IC4 NJM78 5V

The Voltage in the (IC001, Q001, Q002)S the Value between C006(−) side

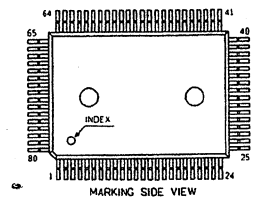

7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
TH001 8D-18F2
D001 D5SB60
R002 47k 2W
R004 100k 2W
C006 270 400V
R003 47k 2W
R017 68
R008 0.1 2W
D006 RD33ESAB
R019 68k
C007 0.022 630V
R005 68k 2W
R006 68k 2W
R007 22 2W
D002 RGIC
C008 100p 1000V
Q001 2SK1082 SWITCHING
R009 22 (1/4W)
R010 10k (1/4W)
C009 150/35V
D004 ERA91-02
R021 39 (1/4W)
D007 ERA91-02
T001 N-T00-608
L101 LPF3A
L102 LPF3A
R101 10 2W
C101 470p/1000V
D101 ESAD92M03
C102 2200 35V
C103 2200 35V
R102 680 2W
C104 56 35V
R127 10
D102 ERA91-02
C017 3300P
C015 3300p
C016 3300p
Q201 2SA1451 SWITCH
IC001 M51995P SWITCHING PULSE CONTROL
R011 33k
R012 33k
D003 1SS178
D005 RD33ESAB
R016 22 (1/4W)
R018 100
PC002(1/2) TLP621
PC001(1/2) TLP621
Q002 2SC1815
C011 0.033 100V
C010 0.033 100V
R013 47k
C012 220p 50V
R014 4.7k
C013 4.7/50V
R015 47
C014 0.01 100V
R020 10k
The Voltage in the IC001, Q001, Q002S the Value between C006(–) side
Q103 RN1001 RELAY DRIVE
PC001(2/2) TLP621
R103 1k
R104 470
R105 10k
C106 4.7/50V
C105 0.047
D103 ERA82-004
R107 1.5k
R106 10k
IC101 NJM431L
IC102 UPC358C HEAD VOLTAGE CONTROL
RV101 2k HEAD VOL MINI
RV102 2k HEAD VOL MAX
R108 3.3k
R109 8.25k
R110 10k
R111 4.7k
IC102(2/2)
IC102(1/2)
Q101 2SA1020 —RUSH CURRENT
Q102 2SA1015 PROTECTION—
Q104 2SA1015
RY101 DG12D1-0M
D104 1SS178
R122 22/1W
C109 10/50V
D108 RD27ESAB
D109 1SS178
R121 10k
R123 27k
R124 39k
R125 6.8k
R118 47
D107 1SS178
C108 47 25V
R119 5.6k
R120 1.5k
D105 1SS178
R128 3.3k
R126 39k
D106 1SS178
D110 1SS178
Q105 Q106
Q105,106 RN1001 POWER CONTROL
PC002(2/2) TLP621
R112 10k
R113 4.7k
R114 10k
R115 10k
R116 10k
RV103 2k
3V REF VOL
R117 4.7k
C107 0.01 100V
IC103 NJM431L
TP1
TP2
CN004
HEAD
GND
TO THERMAL HEAD
(See Page 119)
Q202 RN2001
Q203 RN1001
D201 ERA15-01
R204 10
R201 47 (1/4W)
C201 22 35V
R202 68/1W
R203 68/1W
R205 10k
D203 1SS178
IC201 MB3759M SWITCHING PULSE CONTROL
R208 2.2k
C209 82 10V
R215 10k
R210 100k
C205 0.01/100V
R211 10k
C206 0.015 100V
C207 0.01 100V
R212 1k
R213 1k
R214 2.2k
R221 100
R209 5.6k
C204 4700p 100V
L201 HP-0321
R220 0.1 2W
R207 1k
R206 100
D202 ESA892M-02
L202 LFP3A
R219 22k
C202 1500 16V
L203 RD810A3F
C208 0.47 50V
R217 2.7k
C203 180 16V
R222 180 (1/4W)
RV201 1k 5V VOL
R218 2.2k
D204 1SS178
D402 RD5.6ESAB
D401 1SS178
CN002
+12V UR
GND UR
+5V
STAND-BY 5V
GND
POWER ON
TO SY-50 BOARD CN24
(See Page 133)
CN003
12V
GND
5V
V-CONTROL
TO MC-80 BOARD W5
(See Page 116)
IC701 PQ12RH1 12V REG
D301 ERA15-01
Q301 2SA1451 SWITCH
R301 47 (1/4W)
R304 10
R302 68 2W
R303 68 2W
C301 22 35V
IC301 MB3759M SWITCHING PULSE CONTROL
R305 10k
D302 1SS178
R309 10k
R308 100
R310 10k
C303 0.1µF/100V
R311 1k
R312 1k
C304 0.01/100V
R306 5.6k
C302 3600p 100V
R307 470
L301 HP-032
R318 0.05 2W
R314 1k
R315 100
R316 3.3k
C306 0.01 100V
D303 ESA892M-02
RV301 1k 12V VOL
R317 1.5k
R313 47k
C305 470 25V
L302 LFP3A
IC801 PQ12RF1 12V REG
D702 RD13ESAB
D801 1SS178
D701 1SS178
R701 10k
Q701
C701 47 16V
D601 1SS178
IC601
C601 47/16V
D502 1SS178
D501 RD10ESAB
IC501 NJM7809FA 9V REG
C501 47 16V
IC401
C401 47 16V
R801 10k
IC801
Q801
C801 47 16V
IC601 PQ12RH1 12V REG
IC401 NJM78M05FA 5V REG
Q701, 801 RN1001 SWITCH
CN001
S 12V (UNSW'D)
S 9V (UNSW'D)
12V (SW'D)
5V (SW'D)
GND
TO VA-69 BOARD CN1
(See Page 77)
CHASSIS GND

6-3. SEMICONDUCTORS

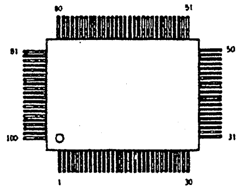
CXD1175AM
IDT6116SA250-T
M51272FP


24
13
1
12
(TOP VIEW)

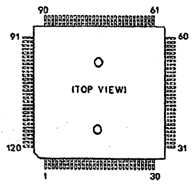
CXD8301Q


64
41
65
40
INDEX
80
1
25
24
MARKING SIDE VIEW

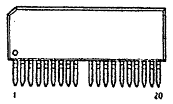
CXD8328Q
μPD65013GF-407-3BA


80
51
81
50
100
31
1
30

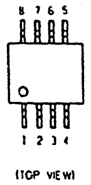
HDC443V2


90
61
91
60
(TOP VIEW)
120
31
1
30

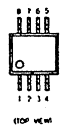
HM51H240AZ7



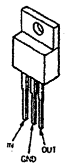
LM358PS


8 7 6 5
1 2 3 4
(TOP VIEW)

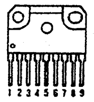
MC14576BF
MC14577AF
NJM2229M
NJM2233BM
NJM2234M


8 7 6 5
1 2 3 4
(TOP VIEW)

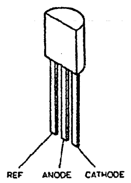
M5F78M05L
NJM78M05FA
NJM78M09FA



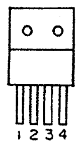
M54544AL



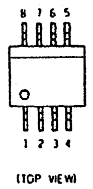
NJM431L


REF
ANODE
CATHODE

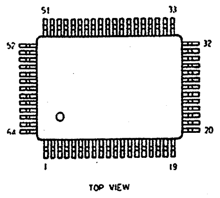
PQ12RF1
PQ12RH1



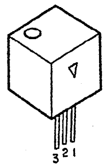
TC4W53F
TC7W04F
TC7W08F


8 7 6 5
1 2 3 4
(TOP VIEW)

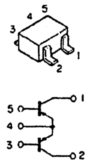
TMP91C640F-2351


51
33
52
32
64
20
1
19
TOP VIEW

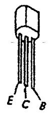
SBX1619-51



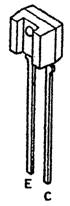
FMS1


4 5
3
2
1
5
4
3
1
2

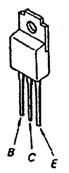
RN1001
2SA1015-0
2SC1815



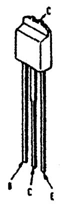
TPS607A



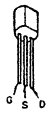
2SA1451



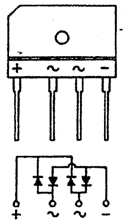
2SD1802-S



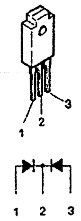
2SK1014



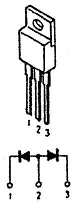
D5SB40



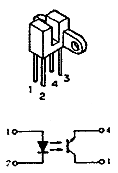
ESAB92M-02



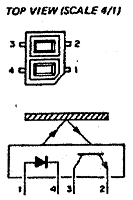
ESAD92M-03



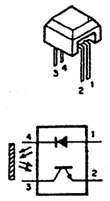
GP-1S03



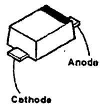
GP-2S04-B


TOP VIEW (SCALE 4/1)
3 2
4 1
1 4 3 2

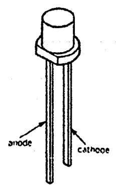
GP-2S05



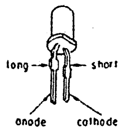
1T33


Anode
Cathode

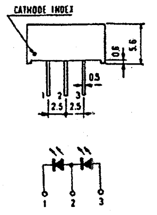
GL3KG47


anode
cathode

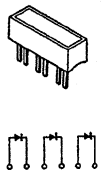
GL-3PR9


long
short
anode
cathode

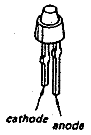
LD-001MG



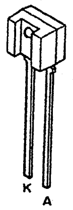
LD-701DU



SLR-34VP3

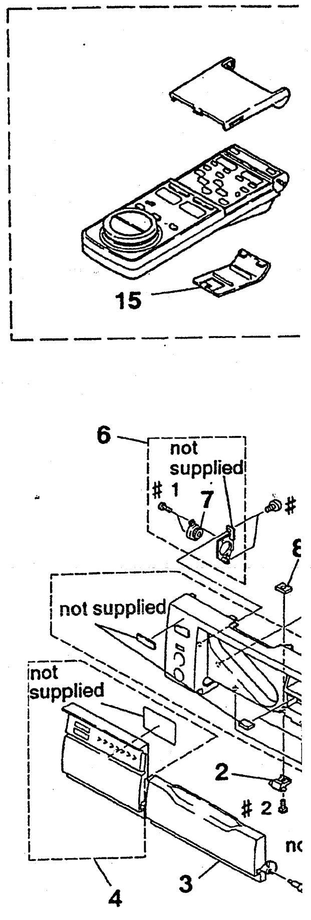

cathode
anode

TLN-107A



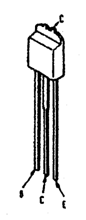
NOTE:
- -XX, -X mean standardized p
may have some difference
original one.
- Items marked " ＊ " are not st
they are seldom required
service. Some delay should be
when ordering these items.

7-1. CABINET ASSEM

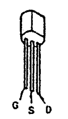

15
6
not supplied
# 1
7
#
not supplied
not supplied
2
# 2
nc
4
3

Ref. No.	Part No.	Descrip
1	X-3942-138-1	PANEL B
2	3-944-693-01	HOLDER,
3	1-466-613-31	SWITCH
4	X-3942-057-1	DOOR UN
5	1-509-891-00	CONNECT
6	X-3941-043-2	HOLDER
7	3-712-786-01	DAMPER,
8	3-944-694-01	STOPPER
* 9	1-641-074-11	CK-51 B
10	X-3941-042-1	HOLDER
11	3-712-786-41	DAMPER,

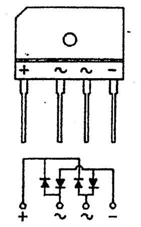
2SD1802-S



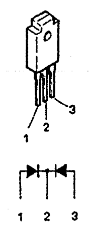
2SK1014



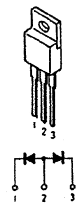
D5SB40



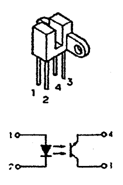
ESAB92M-02



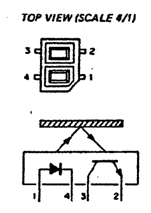
ESAD92M-03



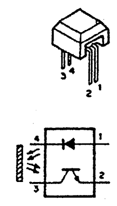
GP-1S03



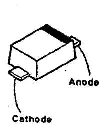
GP-2S04-B


TOP VIEW (SCALE 4/1)
3 2
4 1
1 4 3 2

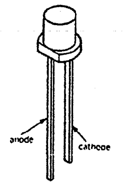
GP-2S05



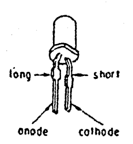
1T33


Anode
Cathode

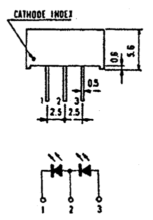
GL3KG47


anode
cathode

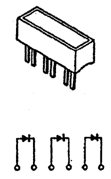
GL-3PR9


long
short
anode
cathode

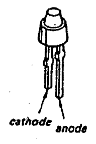
LD-001MG


CATHODE INDEX
1 2 3
1 2 3

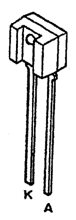
LD-701DU



SLR-34VP3


cathode
anode

TLN-107A



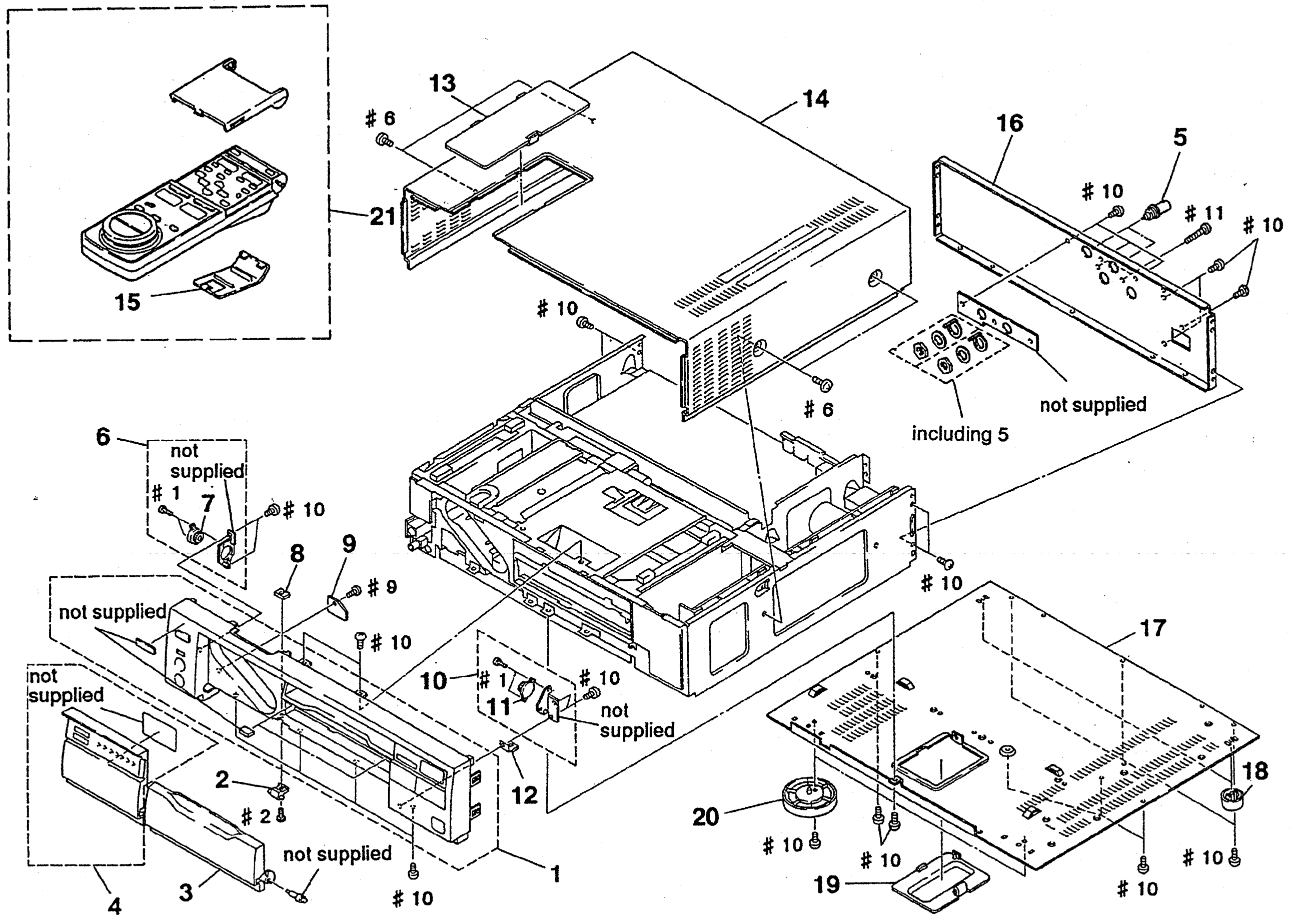
SECTION 7
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

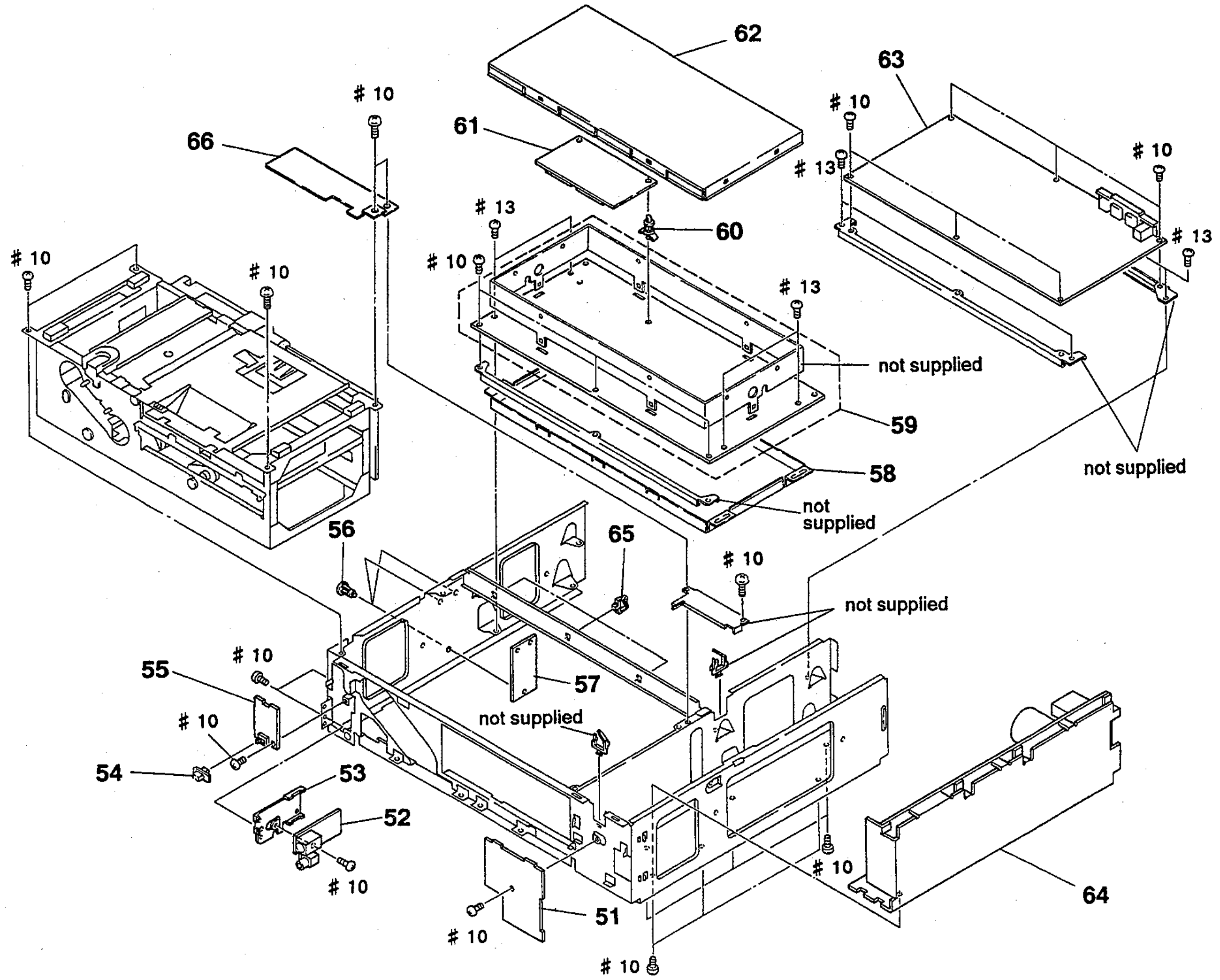
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

7-1. CABINET ASSEMBLY


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
# 1
# 2
# 6
# 9
# 10
# 11
not supplied
including 5

Ref. No.	Part No.	Description	Remark
1	X-3942-138-1	PANEL BLOCK ASSY, FRONT	
2	3-944-693-01	HOLDER, DOOR	
3	1-466-613-31	SWITCH BLOCK, CONTROL	
4	X-3942-057-1	DOOR UNIT ASSY, RIBBON	
5	1-509-891-00	CONNECTOR, BNC	
6	X-3941-043-2	HOLDER ASSY, RIBBON DOOR	
7	3-712-786-01	DAMPER, OIL	
8	3-944-694-01	STOPPER	
* 9	1-641-074-11	CK-51 BOARD	
10	X-3941-042-1	HOLDER ASSY, PANEL	
11	3-712-786-41	DAMPER, OIL	
12	3-944-695-02	PLATE, GROUND	
* 13	3-737-950-12	LID, UPPER	
14	X-3942-058-1	COVER ASSY, TOP	
15	3-943-974-01	COVER, BATTERY	
* 16	3-949-709-01	FRAME, REAR	
* 17	3-944-685-01	PANEL, UNDER	
18	X-3701-069-0	FOOT ASSY, M.F	
* 19	X-3941-564-1	LID BLOCK ASSY, LOWER	
20	X-3735-007-1	FOOT ASSY	
21	1-465-977-31	REMOTE COMMANDER (RMT-7)	

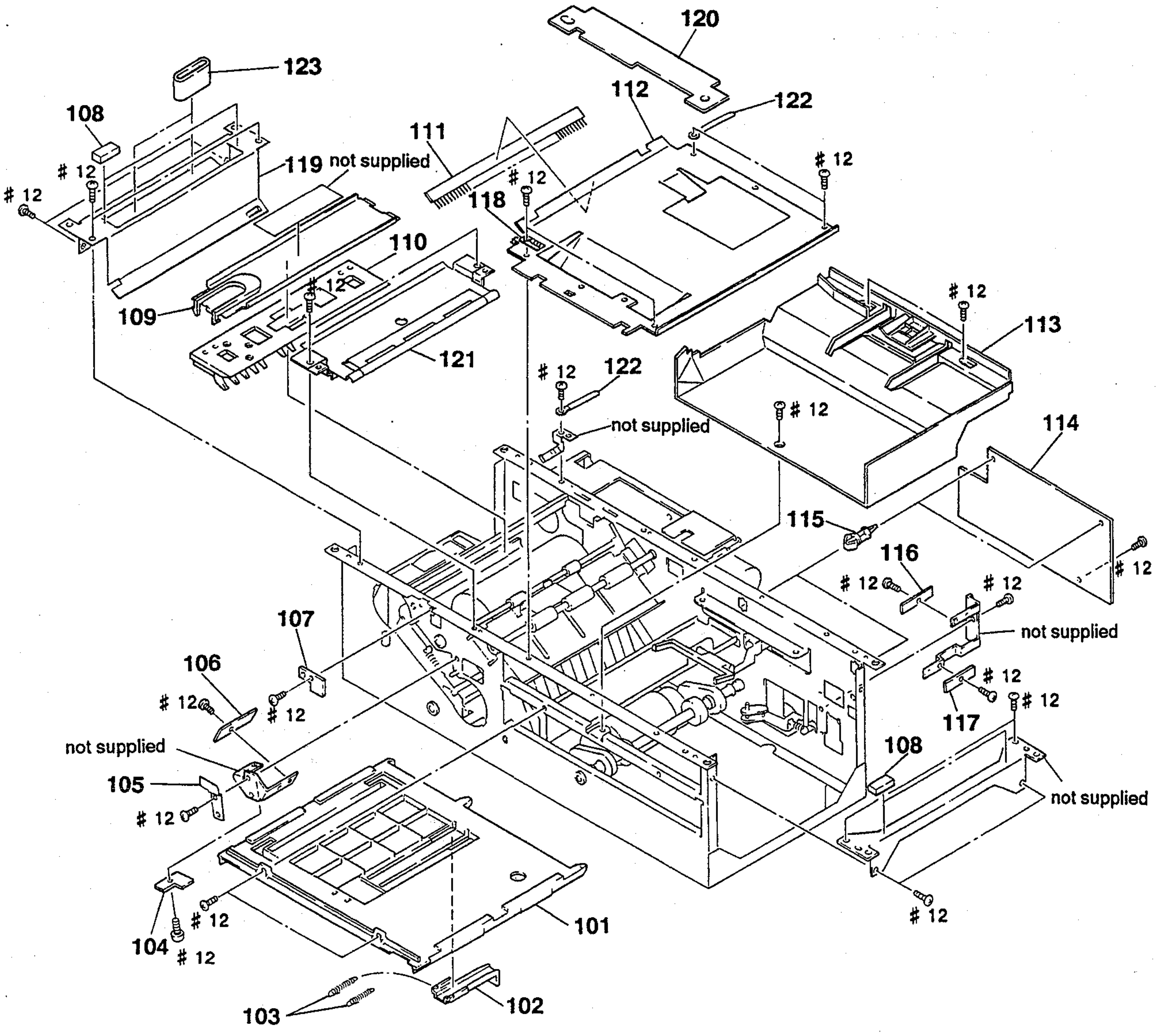
7-2. CHASSIS ASSEMBLY


62
63
# 10
61
66
# 10
# 13
# 10
# 13
60
# 10
# 10
# 10
# 13
# 13
not supplied
59
58
not supplied
not
supplied
not supplied
56
65
# 10
not supplied
55
# 10
57
# 10
not supplied
54
53
52
# 10
# 10
64
51
# 10
# 10

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety..
Replace only with part number specified.

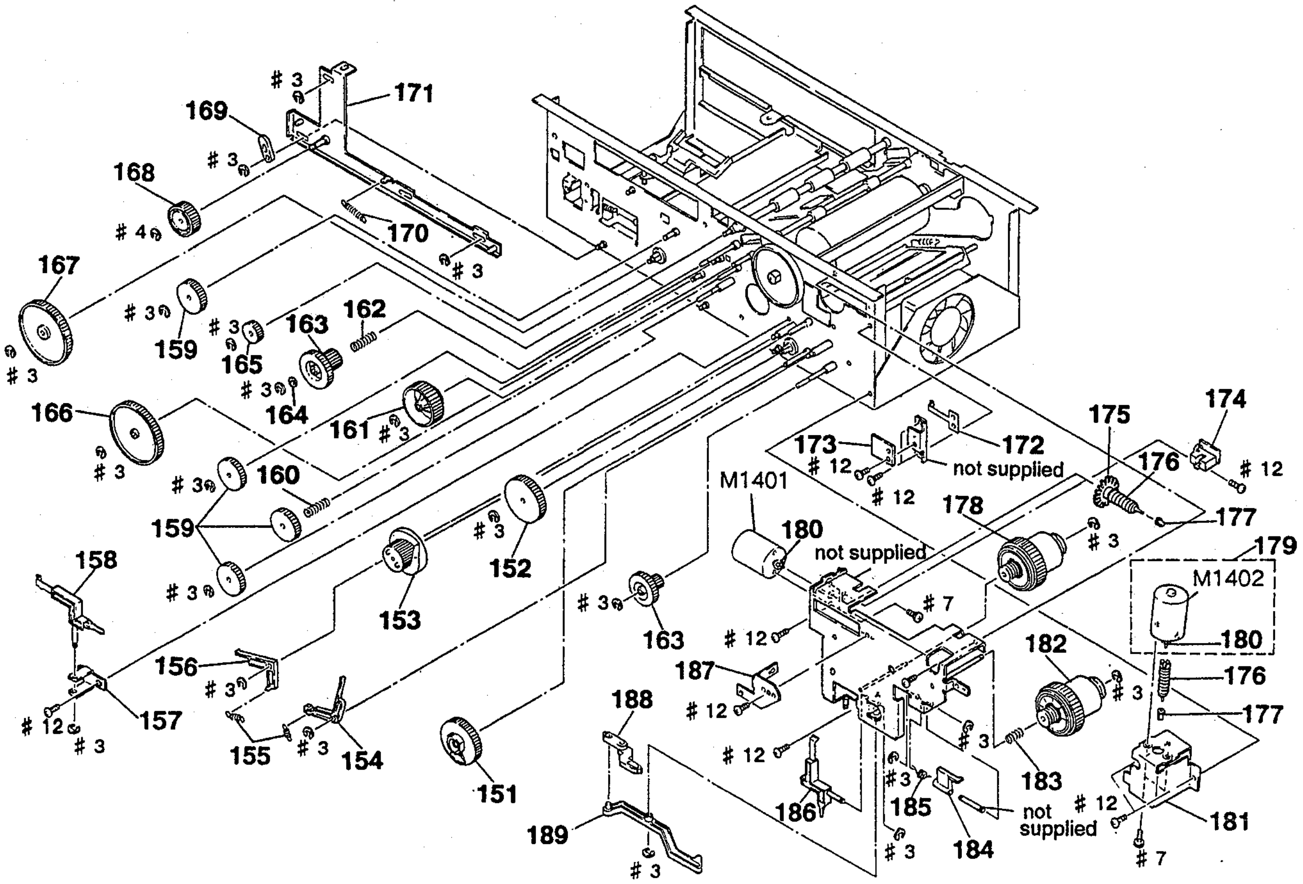
Ref. No.	Part No.	Description	Remark
* 51	1-641-073-11	KY-12 BOARD	
* 52	A-7071-481-A	CN-54 BOARD, COMPLETE	
* 53	3-944-686-01	GUIDE (CN), PC BOARD	
54	3-944-674-11	KNOB, SLIDE	
* 55	1-641-072-11	PW-97 BOARD	
* 56	4-912-181-11	SUPPORT, PC	
* 57	1-641-077-11	CK-55 BOARD	
* 58	3-948-204-01	LID, LOWER, SHIELD CASE, MHC	
* 59	A-7063-396-A	MC-80 BOARD, COMPLETE	
* 60	3-703-353-04	SUPPORT, PC BOARD	
* 61	A-7062-924-A	HC-10 BOARD, COMPLETE	
* 62	3-944-689-01	LID, UPPER, MHC SHIELD CASE	
* 63	A-7063-395-A	VA-69 BOARD, COMPLETE	
⚠64	1-413-759-21	POWER BLOCK (SWITCHING REGULATOR)	
* 65	3-694-225-01	CLAMP	
* 66	3-948-592-01	PLATE, SHIELD	

7-3. MECHANISM CHASSIS ASSEMBLY (1)


120
123
108
112
122
111
# 12
# 12
119 not supplied
# 12
118
# 12
110
109
# 12
121
# 12
122
not supplied
# 12
113
114
115
116
# 12
# 12
not supplied
# 12
107
106
# 12
# 12
not supplied
105
# 12
117
# 12
108
not supplied
# 12
104
# 12
# 12
101
103
102

Ref. No.	Part No.	Description	Remark
* 101	X-3737-829-3	GUIDE BLOCK ASSY, TRAY	
* 102	3-737-861-01	ARM, TRAY EJECT	
103	3-737-862-01	SPRING, TENSION	
* 104	1-630-979-11	SW-4 BOARD	
* 105	3-737-810-01	SPRING	
* 106	1-630-986-11	PTC-10 BOARD	
* 107	1-630-970-11	SW-9 BOARD	
108	9-911-841-XX	CUSHION	
* 109	X-3737-818-6	RETAINER BLOCK ASSY, GUIDE (S)	
110	A-8262-123-A	GUIDE (S) ASSY	
111	3-725-667-01	BRUSH	
112	3-944-770-01	GUIDE, UPPER	
* 113	3-737-961-03	TRAY	
* 114	A-7063-140-A	SY-50 BOARD, COMPLETE	
115	3-680-767-00	SUPPORT, PC	
* 116	1-630-987-11	PTC-11 BOARD	
* 117	1-630-975-11	PTC-9 BOARD	
118	3-944-769-01	SPRING, GROUND	
* 119	3-737-947-02	GUIDE (T), RIBBON	
120	3-948-309-01	COVER, CORD	
121	X-3737-819-7	GUIDE BLOCK ASSY	
* 122	3-701-822-00	HOLDER, WIRE	
123	1-543-950-11	CORE, FERRITE	

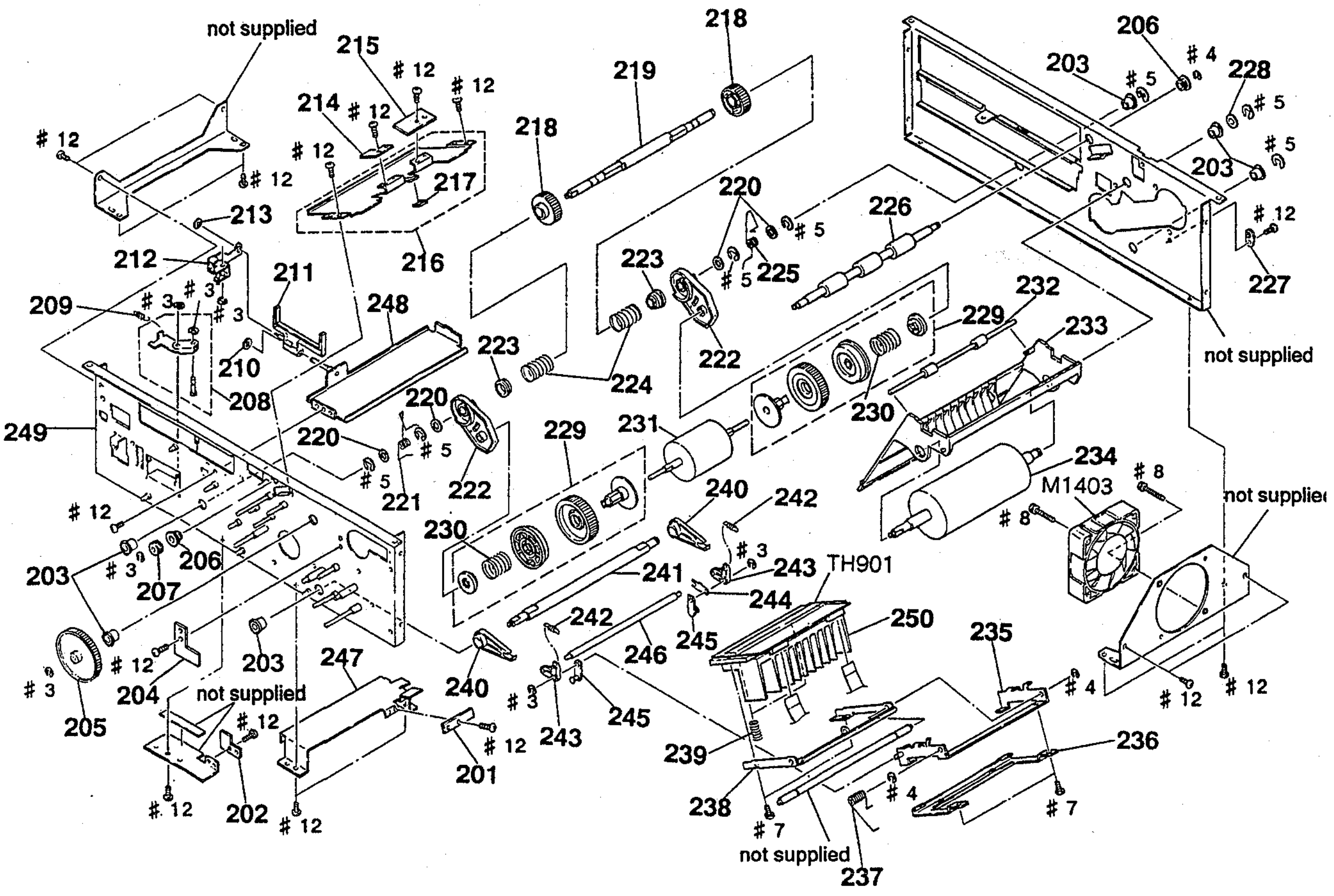
7-4. MECHANISM CHASSIS ASSEMBLY (2)



# 3
171
169
# 3
168
# 4
170
# 3
167
# 3
159
# 3
163
162
165
# 3
# 3
164
166
161
# 3
# 3
# 3
160
159
# 3
152
158
# 3
153
156
# 3
# 12
157
# 3
155
# 3
154
151
173
172
# 12
not supplied
# 12
M1401
180
not supplied
175
174
176
# 12
178
177
# 3
179
M1402
180
# 3
# 7
163
# 12
187
182
176
# 3
188
# 12
177
# 12
# 3
183
# 3
185
186
# 12
not supplied
181
189
# 3
# 3
184
# 7

Ref. No.	Part No.	Description	Remark
151	3-737-922-01	IDLER, HEAD	
152	3-737-807-01	GEAR, HEAD DRIVING	
153	X-3737-802-1	GEAR BLOCK ASSY, CAM	
154	3-737-820-01	BRAKE (S)	
155	3-737-822-01	SPRING, TENSION	
156	3-737-821-01	BRAKE (T)	
* 157	3-737-870-01	BEARING, CHANGE ARM	
158	X-3737-808-1	ARM (A) BLOCK ASSY, CHANGE	
159	3-737-817-01	GEAR, CHANGE	
160	3-737-819-01	SPRING, COMPRESSION	
161	3-737-814-01	GEAR, IDLER	
162	3-737-816-01	SPRING, COMPRESSION	
163	3-737-818-01	WHEEL, WORM	
164	3-701-439-11	WASHER	
165	3-737-815-01	GEAR, IDLER	
166	3-737-823-01	GEAR, IDLER	
167	3-737-813-01	GEAR, DRIVING	
168	3-737-985-01	GEAR, CLUTCH	
169	3-737-827-01	PLATE, STOP, PUSH	
170	3-737-914-01	SPRING, TENSION	
* 171	X-3737-825-1	LINK BLOCK ASSY	
172	3-737-824-03	SPRING	
* 173	1-630-978-11	S-12 BOARD	
* 174	1-630-981-11	SW-6 BOARD	
175	3-745-706-01	ENCORDER	
176	X-3737-811-1	WORM BLOCK ASSY	
177	3-737-880-01	CAP, WORM SHAFT	
178	A-7081-918-A	LEMITER (T) ASSY	
179	A-7040-276-A	MOTOR ASSY, HEAD DRIVING	
180	3-737-886-01	TABLE, WORM	
181	3-737-934-01	BRACKET (H), MOTOR	
* 182	A-7081-917-A	LIMITER (S) ASSY	
183	3-737-881-01	SPRING, COMPRESSION	
184	3-737-878-01	LOCK, LIMITER	
185	3-737-875-01	SPRING	
186	X-3737-810-1	ARM (B) BLOCK ASSY, CHANGE	
* 187	3-737-978-01	BEARING, WORM	
188	3-737-876-01	ARM (S), PLATEN RELEASE	
189	X-3737-809-1	ARM BLOCK ASSY, RELEASE	
M1401	1-541-309-11	MOTOR, L (RF-370C)(PLATEN DRIVING)	
M1402	1-541-309-11	MOTOR, L (RF-370C)(T HEAD UP/DOWN)	

7-5. MECHANISM CHASSIS ASSEMBLY (3)


not supplied
215
# 12
# 12
214
# 12
# 12
217
216
213
212
211
209
# 3
# 3
# 3
210
208
248
219
218
218
220
# 5
225
# 5
223
222
226
223
224
220
220
# 5
# 5
221
222
229
230
231
249
# 12
203
# 3
206
207
205
# 3
# 12
204
203
247
not supplied
# 12
# 12
201
202
# 12
# 12
240
# 3
243
245
242
246
241
240
242
# 3
243
TH901
244
245
250
239
238
# 7
not supplied
237
# 4
# 7
235
# 4
236
# 12
# 12
229
232
233
230
234
M1403
# 8
# 8
not supplied
not supplied
206
203
# 5
# 4
228
# 5
# 5
203
# 12
227

Ref. No.	Part No.	Description	Remark
* 201	1-630-974-11	PTC-8 BOARD	
* 202	1-630-988-11	SW-10 BOARD	
203	3-737-805-01	BEARING (LEFT)	
* 204	1-630-982-11	SW-7 BOARD	
205	3-737-806-01	GEAR, DRIVING	
206	2-430-460-02	BEARING	
207	3-737-811-01	GEAR, ROLLER	
* 208	A-8262-101-A	PLATE ASSY, LOCK	
209	3-737-826-01	SPRING, TENSION	
210	3-669-596-00	WASHER (2.3), STOPPER	
211	X-3737-807-2	ARM BLOCK ASSY	
* 212	X-3737-804-1	LINK BLOCK ASSY, ARM	
213	3-669-465-00	WASHER (1.5), STOPPER	
* 214	1-630-969-11	SW-8 BOARD	
* 215	1-630-980-11	SW-5 BOARD	
* 216	X-3737-815-3	GUIDE BLOCK ASSY	
217	3-737-865-03	COVER, PINCH ROLLER SPRING (M)	
218	3-737-982-01	GEAR, DRIVING SHAFT	
219	3-737-991-01	SHAFT, DRIVING, ROLLER	
220	3-701-444-21	WASHER, 6	
221	3-737-986-03	SPRING (RIGHT), TORSION	
222	3-737-981-01	ARM, PAPER ROLLER	
223	X-3737-828-1	HOUSING BLOCK ASSY	
224	3-737-990-01	SPRING, COMPRESSION	
225	3-737-987-03	SPRING (LEFT), TORSION	
226	3-737-921-02	ROLLER	
* 227	3-737-809-01	BEARING, HEAD GUIDE	
228	3-701-444-11	WASHER, 6	
229	A-8262-125-A	LIMITER ASSY	
230	3-737-988-01	SPRING, COMPRESSION	
231	3-737-992-01	ROLLER, PAPER	
232	3-737-920-01	PINCH ROLLER (M)	
* 233	X-3745-702-3	GUIDE (M) BLOCK ASSY	
234	3-742-102-02	PLATEN	
* 235	X-3737-817-1	GUIDE (M) BLOCK ASSY, HEAD	
* 236	3-737-926-01	RETAINER, SPRING HEAD	
* 237	3-737-808-01	SPRING	
* 238	3-737-976-01	GUIDE (S), HEAD	
239	3-737-975-01	SPRING, COMPRESSION	
240	3-725-688-01	ARM (A), HEAD U/D	
241	3-737-925-02	SHAFT, HEAD DRIVING	
242	3-737-850-01	SPRING, TENSION	
243	3-737-849-01	ARM, RIBBON ROLLER	
244	3-737-852-02	PLATE, GROUND, ROLLER	
* 245	X-3737-805-1	ARM BLOCK ASSY, HEAD DRIVING	
246	3-737-848-01	ROLLER, RIBBON	
* 247	3-737-924-01	GUIDE (B), RIBBON	
248	X-3737-816-2	SUPPORT BLOCK ASSY	
* 249	X-3737-822-4	PLATE (U) BLOCK ASSY, SIDE	
* 250	3-742-101-01	HEAT SINK	
M1403	1-541-684-12	MOTOR, DC (FAN MOTOR)	
TH901	1-543-774-11	HEAD, THERMAL (TH66207)	

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Hardware (# mark) list is given in the last of this parts list.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description	Remark
*	1-641-074-13	CK-51 BOARD (Ref. No 3,000 Series)	
		***********	
		(CONNECTOR)	
* CN401	1-563-969-11	CONNECTOR, F.P.C 7P	
CN402	1-506-485-11	PIN, CONNECTOR 6P	
**			
*	1-641-077-13	CK-55 BOARD (Ref. No 5,000 Series)	
		***********	
		(CONNECTOR)	
CN302	1-506-486-11	PIN, CONNECTOR 7P	
		(FLAT CABLE)	
W307	1-949-137-21	HARNESS (SH-53)	
**			
*	A-7071-683-A	CN-54 BOARD, COMPLETE	
		*********************	
		(Ref. No 3,000 Series)	
		(JACK)	
CNJ101	1-566-980-31	CONNECTOR, ROUND TYPE 4P	
CNJ102	1-568-550-11	JACK, PIN 1P	
		(DIODE)	
D101	8-719-108-12	DIODE RD9.1E-W	
D102	8-719-108-12	DIODE RD9.1E-W	
D103	8-719-108-12	DIODE RD9.1E-W	
**			
*	A-7062-924-A	HC-10 BOARD, COMPLETE	
		*********************	
		(Ref. No 3,000 Series)	
		(CAPACITOR)	
C001	1-124-584-00	ELECT 100uF 20% 10V	
C002	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C003	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C004	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C005	1-163-033-00	CERAMIC CHIP 0.022uF 50V	

Ref. No.	Part No.	Description	Remark
C006	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C007	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C008	1-124-584-00	ELECT 100uF 20% 10V	
C009	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C010	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C011	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C012	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
		(CONNECTOR)	
CN001	1-580-722-11	CONNECTOR, BOARD TO BOARD 28P	
CN002	1-580-722-11	CONNECTOR, BOARD TO BOARD 28P	
		(FILTER)	
FL001	1-236-738-11	FILTER, EMI	
FL002	1-236-738-11	FILTER, EMI	
FL003	1-236-738-11	FILTER, EMI	
FL004	1-236-738-11	FILTER, EMI	
FL005	1-236-738-11	FILTER, EMI	
		(IC)	
IC001	8-759-154-84	IC HDC443V2	
IC002	8-759-053-58	IC IDT6116SA25SO	
IC003	8-759-053-58	IC IDT6116SA25SO	
IC004	8-759-062-13	IC uPD23C1000AG-360	
IC005	8-759-926-77	IC SN74HC541ANS	
IC006	8-759-983-69	IC LM358PS	
		(RESISTOR)	
R001	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R002	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R003	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R004	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R005	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R006	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R007	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R008	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R009	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R010	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R011	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R015	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R016	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R017	1-216-045-00	METAL CHIP 680 5% 1/10W	
R018	1-216-043-00	METAL CHIP 560 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R019	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R020	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R021	1-216-043-00	METAL CHIP 560 5% 1/10W	
R022	1-216-045-00	METAL CHIP 680 5% 1/10W	
R023	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R024	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R025	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R026	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R027	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R028	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R029	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R030	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R031	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R032	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R033	1-216-045-00	METAL CHIP 680 5% 1/10W	
R034	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R035	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R036	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R037	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R038	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R039	1-216-001-00	METAL CHIP 10 5% 1/10W	
R040	1-216-001-00	METAL CHIP 10 5% 1/10W	
R041	1-216-001-00	METAL CHIP 10 5% 1/10W	
R042	1-216-001-00	METAL CHIP 10 5% 1/10W	
R043	1-216-001-00	METAL CHIP 10 5% 1/10W	
R044	1-216-001-00	METAL CHIP 10 5% 1/10W	
R045	1-216-001-00	METAL CHIP 10 5% 1/10W	
R046	1-216-001-00	METAL CHIP 10 5% 1/10W	
R047	1-216-001-00	METAL CHIP 10 5% 1/10W	
R048	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R049	1-216-089-00	METAL CHIP 47K 5% 1/10W	
		(SWITCH)	
S801	1-570-845-11	SWITCH, SLIDE	
		(THERMISTOR)	
TH001	1-807-796-11	THERMISTOR 10K	
		(VIBRATOR)	
X001	1-567-927-11	VIBLATOR, CERAMIC (16MHz)	

****

Ref. No.	Part No.	Description	Remark
*	1-641-073-13	KY-12 BOARD (Ref.No 6,000 Series) ***********	
	1-562-719-11	SOCKET, CONNECTOR 10P	
		(BUZZER)	
BZ1	1-529-069-11	BUZZER, PIEZOELECTRIC	
		(CAPACITOR)	
C001	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C002	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C003	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C004	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C005	1-124-589-11	ELECT 47uF 20% 16V	
C006	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C007	1-124-584-00	ELECT 100uF 20% 10V	
C008	1-163-275-11	CERAMIC CHIP 0.001uF 5% 50V	
C009	1-163-137-00	CERAMIC CHIP 680PF 5% 50V	
		(DIODE)	
D001	8-719-018-50	DIODE LD-701DU	
D002	8-719-948-07	LED LD-001MG	
D003	8-719-948-07	LED LD-001MG	
D004	8-719-948-07	LED LD-001MG	
		(IC)	
IC001	8-759-987-65	IC BA6250F	
IC002	8-741-100-63	IC SBX1619-51	
IC003	8-759-144-85	IC uPC1555G2	
		(TRANSISTOR)	
Q001	8-729-901-04	TRANSISTOR DTA114EK	
Q002	8-729-900-53	TRANSISTOR DTC114EK	
Q003	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
		(RESISTOR)	
R001	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R002	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R003	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R004	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R005	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R006	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R007	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R008	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R009	1-216-029-00	METAL CHIP 150 5% 1/10W	
R010	1-216-021-00	METAL CHIP 68 5% 1/10W	
R011	1-216-021-00	METAL CHIP 68 5% 1/10W	
R012	1-216-021-00	METAL CHIP 68 5% 1/10W	
R013	1-216-017-00	METAL CHIP 47 5% 1/10W	
R014	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R015	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R016	1-216-029-00	METAL CHIP 150 5% 1/10W	
R017	1-216-029-00	METAL CHIP 150 5% 1/10W	
R018	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R019	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R020	1-216-025-00	METAL CHIP 100 5% 1/10W	
R021	1-216-049-00	METAL CHIP 1K 5% 1/10W	

〈 SWITCH 〉

Ref. No.	Part No.	Description	Remark
S001	1-570-472-11	SWITCH, KEY BOARD (PRINT)	
S002	1-570-472-11	SWITCH, KEY BOARD (CAPTURE)	
S003	1-570-472-11	SWITCH, KEY BOARD (CAPTURE MODE)	
S004	1-570-472-11	SWITCH, KEY BOARD (MONITOR MEMORY)	

****

* A-7063-396-A MC-80 BOARD, COMPLETE

****

(Ref. No 2,000 Series)

〈 CAPACITOR 〉

Ref. No.	Part No.	Description				Remark
C101	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C102	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C103	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C104	1-124-589-11	ELECT	47uF	20%	16V	
C106	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C107	1-124-589-11	ELECT	47uF	20%	16V	
C108	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C109	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C120	1-163-227-11	CERAMIC CHIP	10PF	5%	50V	
C201	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C202	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C203	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C204	1-124-589-11	ELECT	47uF	20%	16V	
C206	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C209	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C220	1-163-227-11	CERAMIC CHIP	10PF	5%	50V	
C301	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C302	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C303	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C304	1-124-589-11	ELECT	47uF	20%	16V	
C306	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C309	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C320	1-163-227-11	CERAMIC CHIP	10PF	5%	50V	
C401	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C402	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C403	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C404	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C405	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C406	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C407	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C408	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C409	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C410	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C411	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C412	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C413	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C414	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C416	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	
C417	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C418	1-124-589-11	ELECT	47uF	20%	16V	
C419	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C420	1-124-589-11	ELECT	47uF	20%	16V	
C421	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C501	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C502	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C503	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C504	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C505	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C506	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C507	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C508	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C509	1-163-227-11	CERAMIC CHIP	10PF	5%	50V	
C510	1-163-241-11	CERAMIC CHIP	39PF	5%	50V	
C511	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C512	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C513	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C514	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C515	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	
C516	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	
C517	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C518	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C519	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C520	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C521	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C522	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C523	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C524	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C525	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C526	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C527	1-124-589-11	ELECT	47uF	20%	16V	
C528	1-124-589-11	ELECT	47uF	20%	16V	
C542	1-124-589-11	ELECT	47uF	20%	16V	
C543	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C544	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C545	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C601	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C602	1-126-101-11	ELECT	100uF	20%	16V	
C605	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C606	1-131-381-00	TANTALUM	47uF	10%	10V	
C607	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C608	1-124-589-11	ELECT	47uF	20%	16V	
C609	1-124-589-11	ELECT	47uF	20%	16V	
C610	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	

〈 CONNECTOR 〉

Ref. No.	Part No.	Description	Remark
CN001	1-580-723-11	CONNECTOR, BOARD TO BOARD 28P	
CN002	1-580-723-11	CONNECTOR, BOARD TO BOARD 28P	
CN003	1-562-719-11	SOCKET, CONNECTOR 10P	

Ref. No.	Part No.	Description	Remark
		〈 TRIMMER 〉	
CT501	1-141-245-00	CAP, TRIMMER 30PF	
		〈 DIODE 〉	
D101	8-719-800-76	DIODE 1SS226	
D201	8-719-800-76	DIODE 1SS226	
D301	8-719-800-76	DIODE 1SS226	
D501	8-719-800-76	DIODE 1SS226	
		〈 DELAY LINE 〉	
DL501	8-759-507-10	IC DS1000S-75	
DL502	8-759-503-50	IC DS1000S-50-T1	
		〈 FILTER 〉	
EM105	1-236-743-21	FILTER, EMI	
EM601	1-236-743-21	FILTER, EMI	
EM602	1-236-743-21	FILTER, EMI	
EM603	1-236-743-21	FILTER, EMI	
EM604	1-236-743-21	FILTER, EMI	
EM605	1-236-743-21	FILTER, EMI	
EM606	1-236-743-21	FILTER, EMI	
EM607	1-236-743-21	FILTER, EMI	
EM608	1-236-743-21	FILTER, EMI	
EM609	1-236-743-21	FILTER, EMI	
EM610	1-236-743-21	FILTER, EMI	
EM611	1-236-743-21	FILTER, EMI	
EM801	1-236-743-21	FILTER, EMI	
		〈 FERRITE BEAD 〉	
FB401	1-535-178-00	RES, FERRITE	
		〈 IC 〉	
IC101	8-752-334-55	IC CXD1175AM	
IC102	8-759-053-58	IC IDT6116SA25SO	
IC201	8-752-334-55	IC CXD1175AM	
IC202	8-759-053-58	IC IDT6116SA25SO	
IC301	8-752-334-55	IC CXD1175AM	
IC302	8-759-053-58	IC IDT6116SA25SO	
IC401	8-759-154-50	IC CXD8301Q	
IC402	8-759-154-50	IC CXD8301Q	
IC403	8-759-154-50	IC CXD8301Q	
IC404	8-759-154-50	IC CXD8301Q	
IC405	8-759-154-50	IC CXD8301Q	
IC406	8-759-154-50	IC CXD8301Q	
IC407	8-752-032-93	IC CXA1260Q-Z	
IC408	8-759-051-58	IC uPD23C1001EC-573	
IC409	8-759-051-59	IC uPD23C1001EC-574	
IC410	8-759-038-00	IC MC74HC574AF	
IC411	8-759-232-58	IC TC74HC139AF	

Ref. No.	Part No.	Description	Remark
IC501	8-759-043-61	IC HM514400AZ7	
IC502	8-759-043-61	IC HM514400AZ7	
IC503	8-759-043-61	IC HM514400AZ7	
IC504	8-759-043-61	IC HM514400AZ7	
IC505	8-759-043-61	IC HM514400AZ7	
IC506	8-759-043-61	IC HM514400AZ7	
IC507	8-759-114-07	IC uPD65013GF-407-3BA	
IC508	8-759-114-09	IC uPD65006GF-250-3B8	
IC509	8-759-053-96	IC CXD8328Q	
IC510	8-759-069-24	IC HD6435328RB40F	
IC512	8-759-992-78	IC 74F257ASJ-T5L	
IC513	8-759-140-94	IC CXD1332P	
IC514	8-759-948-01	IC 74F04SJ	
IC515	8-759-989-03	IC 74F32SJ	
IC516	8-759-053-60	IC 74F86SJ-L5	
IC517	8-759-989-01	IC 74F08SJ	
		〈 COIL 〉	
L601	1-412-525-21	INDUCTOR 10uH	
L602	1-412-525-21	INDUCTOR 10uH	
L603	1-412-525-21	INDUCTOR 10uH	
		〈 TRANSISTOR 〉	
Q101	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q201	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q301	8-729-100-66	TRANSISTOR 2SC1623-L6	
		〈 RESISTOR 〉	
R101	1-216-041-00	METAL CHIP 470 5% 1/10W	
R102	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R114	1-216-295-00	METAL CHIP 0 5% 1/10W	
R120	1-216-033-00	METAL CHIP 220 5% 1/10W	
R121	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R122	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R201	1-216-041-00	METAL CHIP 470 5% 1/10W	
R202	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R214	1-216-295-00	METAL CHIP 0 5% 1/10W	
R220	1-216-033-00	METAL CHIP 220 5% 1/10W	
R221	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R222	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R301	1-216-041-00	METAL CHIP 470 5% 1/10W	
R302	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R314	1-216-295-00	METAL CHIP 0 5% 1/10W	
R320	1-216-033-00	METAL CHIP 220 5% 1/10W	
R321	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R322	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R401	1-216-041-00	METAL CHIP 470 5% 1/10W	
R402	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R501	1-216-017-00	METAL CHIP 47 5% 1/10W	
R502	1-216-017-00	METAL CHIP 47 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R503	1-216-017-00	METAL CHIP 47 5% 1/10W	
R504	1-216-017-00	METAL CHIP 47 5% 1/10W	
R505	1-216-017-00	METAL CHIP 47 5% 1/10W	
R506	1-216-017-00	METAL CHIP 47 5% 1/10W	
R507	1-216-017-00	METAL CHIP 47 5% 1/10W	
R508	1-216-017-00	METAL CHIP 47 5% 1/10W	
R509	1-216-017-00	METAL CHIP 47 5% 1/10W	
R510	1-216-017-00	METAL CHIP 47 5% 1/10W	
R511	1-216-017-00	METAL CHIP 47 5% 1/10W	
R512	1-216-119-00	METAL CHIP 820K 5% 1/10W	
R513	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R514	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R516	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R517	1-216-025-00	METAL CHIP 100 5% 1/10W	
R518	1-216-017-00	METAL CHIP 47 5% 1/10W	
R519	1-216-041-00	METAL CHIP 470 5% 1/10W	
R520	1-216-041-00	METAL CHIP 470 5% 1/10W	
R521	1-216-017-00	METAL CHIP 47 5% 1/10W	
R522	1-216-017-00	METAL CHIP 47 5% 1/10W	
R523	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R524	1-216-295-00	METAL CHIP 0 5% 1/10W	
R525	1-216-295-00	METAL CHIP 0 5% 1/10W	
R526	1-216-295-00	METAL CHIP 0 5% 1/10W	
R527	1-216-295-00	METAL CHIP 0 5% 1/10W	
R528	1-216-295-00	METAL CHIP 0 5% 1/10W	
R532	1-216-017-00	METAL CHIP 47 5% 1/10W	
R533	1-216-017-00	METAL CHIP 47 5% 1/10W	
R534	1-216-017-00	METAL CHIP 47 5% 1/10W	
R535	1-216-017-00	METAL CHIP 47 5% 1/10W	
R536	1-216-025-00	METAL CHIP 100 5% 1/10W	
R537	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R538	1-216-017-00	METAL CHIP 47 5% 1/10W	
R539	1-216-017-00	METAL CHIP 47 5% 1/10W	
R540	1-216-017-00	METAL CHIP 47 5% 1/10W	
R541	1-216-017-00	METAL CHIP 47 5% 1/10W	
R542	1-216-017-00	METAL CHIP 47 5% 1/10W	
R543	1-216-017-00	METAL CHIP 47 5% 1/10W	
R544	1-216-025-00	METAL CHIP 100 5% 1/10W	
R601	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R602	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R603	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R604	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R605	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R606	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R607	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R608	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R609	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R610	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R611	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R612	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R613	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R614	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R615	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R616	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R617	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R618	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R619	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R620	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R621	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R622	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R623	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R624	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R625	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R626	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R627	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R628	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R629	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R630	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R631	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R632	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R633	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R634	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R635	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R636	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R637	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R638	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R639	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R640	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R641	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R642	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R643	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R644	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R645	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R646	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R647	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R648	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R649	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R650	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R651	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R652	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R653	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R654	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R655	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R656	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R657	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R658	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R659	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R660	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R661	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R662	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R663	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R664	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R665	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R666	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R667	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R668	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R669	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R670	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R671	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R672	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R673	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R674	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R675	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R676	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R677	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R678	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R679	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R680	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R682	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R683	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R684	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R685	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R686	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R687	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R688	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R690	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R691	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R692	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R693	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R694	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R695	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R696	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	

(VARIABLE RESISTOR)

RV401	1-226-771-11	RES, ADJ, METAL 1K	

(VIBRATOR)

X501	1-567-878-11	OSCILLATOR, CRYSTAL 14.31818MHz	
X502	1-577-121-11	VIBRATOR, CRYSTAL	

****

*	1-630-974-13	PTC-8 BOARD (Ref.No 10,000 Series)	

****

	3-737-916-02	COVER, SENSOR	

(DIODE)

D1401	8-719-820-46	LED TLN107A	

****

Ref. No.	Part No.	Description	Remark
*	1-630-975-13	PTC-9 BOARD (Ref.No 10,000 Series)	

****

	3-737-916-02	COVER, SENSOR	

(DIODE)

D1402	8-719-820-46	LED TLN107A	

****

*	1-630-986-13	PTC-10 BOARD (Ref.No 10,000 Series)	

****

	3-737-916-02	COVER, SENSOR	

(PHOTO INTERUPTER)

PH1409	8-729-822-57	TRANSISTOR TPS607A	

****

*	1-630-987-13	PTC-11 BOARD (Ref.No 10,000 Series)	

****

	3-737-916-02	COVER, SENSOR	

(PHOTO INTERUPTER)

PH1410	8-729-822-57	TRANSISTOR TPS607A	

****

*	1-641-072-13	PW-97 BOARD (Ref.No 3,000 Series)	

****

(CAPACITOR)

C201	1-163-063-00	CERAMIC CHIP 0.022uF 10% 50V	

(CONNECTOR)

CN201	1-506-485-11	PIN, CONNECTOR 6P	
CN202	1-506-484-11	PIN, CONNECTOR 5P	

(DIODE)

D201	8-719-918-76	LED GL-3PR9	
D202	8-719-018-97	DIODE GL3KG43	
D203	8-719-110-49	DIODE RD18ES-B2	
D204	8-719-110-49	DIODE RD18ES-B2	
D205	8-719-110-49	DIODE RD18ES-B2	
D206	8-719-018-97	DIODE GL3KG43	

(TRANSISTOR)

Q201	8-729-900-98	TRANSISTOR DTC143TK	
Q202	8-729-900-98	TRANSISTOR DTC143TK	
Q203	8-729-900-98	TRANSISTOR DTC143TK	

Ref. No.	Part No.	Description	Remark
		(RESISTOR)	
R201	1-216-033-00	METAL CHIP 220 5% 1/10W	
R202	1-216-025-00	METAL CHIP 100 5% 1/10W	
R203	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R204	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R205	1-216-025-00	METAL CHIP 100 5% 1/10W	
		(SWITCH)	
S201	1-553-856-00	SWITCH, KEY BOARD (POWER OFF)	
S202	1-570-845-11	SWITCH, SLIDE (INPUT SELECT)	

****

Ref. No.	Part No.	Description	Remark
*	1-630-978-13	S-12 BOARD (Ref. No 10,000 Series) **********	
		(SWITCH)	
S1401	1-570-953-11	SWITCH, PUSH (1 KEY)	

****

Ref. No.	Part No.	Description	Remark
*	1-630-979-13	SW-4 BOARD (Ref. No 10,000 Series) **********	
		(PHOTO INTERUPTER)	
PH1401	8-749-922-44	DIODE GP2S05J	

****

Ref. No.	Part No.	Description	Remark
*	1-630-980-13	SW-5 BOARD (Ref. No 10,000 Series) **********	
		(PHOTO INTERUPTER)	
PH1402	8-719-913-55	DIODE GP-2S04-B	

****

Ref. No.	Part No.	Description	Remark
*	1-630-981-13	SW-6 BOARD (Ref. No 10,000 Series) **********	
		(PHOTO INTERUPTER)	
PH1403	8-719-906-43	DIODE GP-1S03	

****

Ref. No.	Part No.	Description	Remark
*	1-630-982-13	SW-7 BOARD (Ref. No 10,000 Series) **********	
		(PHOTO INTERUPTER)	
PH1404	8-719-913-55	DIODE GP-2S04-B	
PH1405	8-719-913-55	DIODE GP-2S04-B	

****

Ref. No.	Part No.	Description	Remark
*	1-630-969-13	SW-8 BOARD (Ref. No 10,000 Series) **********	
		(PHOTO INTERUPTER)	
PH1406	8-749-922-44	DIODE GP2S05J	

****

Ref. No.	Part No.	Description	Remark
*	1-630-970-13	SW-9 BOARD (Ref. No 10,000 Series) **********	
		(PHOTO INTERUPTER)	
PH1407	8-749-922-44	DIODE GP2S05J	

****

Ref. No.	Part No.	Description	Remark
*	1-630-988-13	SW-10 BOARD (Ref. No 10,000 Series) ***********	
		(PHOTO INTERUPTER)	
PH1408	8-749-922-44	DIODE GP2S05J	

****

Ref. No.	Part No.	Description	Remark
*	A-7063-140-A	SY-50 BOARD, COMPLETE ********************* (Ref. No 4,000 Series)	
		(CAPACITOR)	
C001	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C002	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C003	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C004	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C005	1-126-157-11	ELECT 10uF 20% 16V	
C006	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C007	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C008	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C010	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C011	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C012	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C013	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C014	1-124-589-11	ELECT 47uF 20% 16V	
C016	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C017	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C018	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C019	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C020	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C021	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C022	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C023	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C024	1-163-033-00	CERAMIC CHIP 0.022uF 50V	

SY-50

Ref. No.	Part No.	Description	Remark
C025	1-126-157-11	ELECT 10uF 20% 16V	
C026	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C027	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C028	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C029	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C030	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C031	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C032	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C033	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C034	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C035	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C036	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C037	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C038	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C039	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C040	1-124-584-00	ELECT 100uF 20% 10V	
C041	1-124-584-00	ELECT 100uF 20% 10V	
C042	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C043	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C044	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C045	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C046	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C047	1-124-589-11	ELECT 47uF 20% 16V	
C048	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C049	1-124-589-11	ELECT 47uF 20% 16V	
C050	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C051	1-126-160-11	ELECT 1uF 20% 50V	
C052	1-126-157-11	ELECT 10uF 20% 16V	
C053	1-130-483-00	MYLAR 0.01uF 5% 50V	
C054	1-130-483-00	MYLAR 0.01uF 5% 50V	
C055	1-130-483-00	MYLAR 0.01uF 5% 50V	
C056	1-130-478-00	MYLAR 0.0039uF 5% 50V	
C057	1-124-589-11	ELECT 47uF 20% 16V	
C058	1-126-157-11	ELECT 10uF 20% 16V	
C059	1-130-489-00	MYLAR 0.033uF 5% 50V	
C060	1-124-463-00	ELECT 0.1uF 20% 50V	
C061	1-126-160-11	ELECT 1uF 20% 50V	
C062	1-130-474-00	MYLAR 0.0018uF 5% 50V	
C063	1-124-463-00	ELECT 0.1uF 20% 50V	
C064	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C065	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C070	1-163-033-00	CERAMIC CHIP 0.022uF 50V	

(CONNECTOR)

Ref. No.	Part No.	Description	Remark
CN001	1-506-468-11	PIN, CONNECTOR 3P	
CN002	1-506-468-11	PIN, CONNECTOR 3P	
CN003	1-506-471-11	PIN, CONNECTOR 6P	
CN004	1-506-468-11	PIN, CONNECTOR 3P	
CN005	1-506-468-11	PIN, CONNECTOR 3P	
CN006	1-506-468-11	PIN, CONNECTOR 3P	
CN007	1-506-468-11	PIN, CONNECTOR 3P	
CN008	1-506-468-11	PIN, CONNECTOR 3P	
CN009	1-506-468-11	PIN, CONNECTOR 3P	
CN010	1-506-468-11	PIN, CONNECTOR 3P	
CN011	1-506-468-11	PIN, CONNECTOR 3P	
CN012	1-506-468-11	PIN, CONNECTOR 3P	
CN013	1-506-468-11	PIN, CONNECTOR 3P	
CN014	1-506-468-11	PIN, CONNECTOR 3P	
CN015	1-506-468-11	PIN, CONNECTOR 3P	
CN016	1-506-471-11	PIN, CONNECTOR 6P	
CN017	1-506-470-11	PIN, CONNECTOR 5P	
CN018	1-506-478-11	PIN, CONNECTOR 13P	
CN019	1-506-474-11	PIN, CONNECTOR 9P	
CN020	1-506-471-11	PIN, CONNECTOR 6P	
CN021	1-506-469-11	PIN, CONNECTOR 4P	
CN022	1-506-471-11	PIN, CONNECTOR 6P	
* CN023	1-564-011-71	PIN, CONNECTOR 12P	
* CN024	1-560-894-00	PIN, CONNECTOR 6P	

(DIODE)

Ref. No.	Part No.	Description	Remark
D001	8-719-110-16	DIODE RD10ES-B1	

(IC)

Ref. No.	Part No.	Description	Remark
IC001	8-759-073-32	IC TMP91C640F-2351	
IC003	8-759-926-12	IC SN74HC139ANS	
IC004	8-759-925-85	IC SN74HC32ANS	
IC005	8-759-970-26	IC PST523C	
IC006	8-759-926-82	IC SN74HC574ANS	
IC007	8-759-926-82	IC SN74HC574ANS	
IC008	8-759-926-77	IC SN74HC541ANS	
IC009	8-759-926-82	IC SN74HC574ANS	
IC010	8-759-909-45	IC CX20084	
IC011	8-759-633-10	IC M54544AL	
IC012	8-759-633-10	IC M54544AL	
IC013	8-759-100-93	IC uPC393G2	
IC014	8-759-983-69	IC LM358PS	
IC015	8-759-100-93	IC uPC393G2	
IC016	8-759-100-93	IC uPC393G2	

(COIL)

Ref. No.	Part No.	Description	Remark
L001	1-424-102-11	COIL, LINE FILTER	
L002	1-424-102-11	COIL, LINE FILTER	

(TRANSISTOR)

Ref. No.	Part No.	Description	Remark
Q001	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q002	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q003	8-729-140-96	TRANSISTOR KSC1008	
Q004	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q005	8-729-807-12	TRANSISTOR 2SD1802-S	
Q006	8-729-101-07	TRANSISTOR 2SB798-DL	

Ref. No.	Part No.	Description	Remark
Q007	8-729-101-07	TRANSISTOR 2SB798-DL	
Q008	8-729-120-28	TRANSISTOR 2SC1623-L5L6	

(RESISTOR)

Ref. No.	Part No.	Description	Remark
R001	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R002	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R003	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R004	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R005	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R006	1-216-041-00	METAL CHIP 470 5% 1/10W	
R007	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R008	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R009	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R010	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R011	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R012	1-216-033-00	METAL CHIP 220 5% 1/10W	
R013	1-216-047-00	METAL CHIP 820 5% 1/10W	
R014	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R015	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R016	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R017	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R018	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R020	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R021	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R022	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R023	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R024	1-216-041-00	METAL CHIP 470 5% 1/10W	
R025	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R026	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R027	1-216-035-00	METAL CHIP 270 5% 1/10W	
R028	1-216-037-00	METAL CHIP 330 5% 1/10W	
R029	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R030	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R031	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R032	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R033	1-216-045-00	METAL CHIP 680 5% 1/10W	
R034	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R035	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R036	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R037	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R038	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R039	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R040	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R041	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R042	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R043	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R044	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R045	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R046	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R047	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R048	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R049	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R050	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R051	1-216-043-00	METAL CHIP 560 5% 1/10W	
R052	1-216-043-00	METAL CHIP 560 5% 1/10W	
R053	1-216-041-00	METAL CHIP 470 5% 1/10W	
R054	1-216-041-00	METAL CHIP 470 5% 1/10W	
R055	1-216-041-00	METAL CHIP 470 5% 1/10W	
R056	1-216-041-00	METAL CHIP 470 5% 1/10W	
R057	1-216-025-00	METAL CHIP 100 5% 1/10W	
R058	1-216-025-00	METAL CHIP 100 5% 1/10W	
R059	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R060	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R061	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R062	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R063	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R064	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R065	1-216-039-00	METAL CHIP 390 5% 1/10W	
R066	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R067	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R068	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R069	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R070	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R071	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R072	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R073	1-216-089-00	METAL CHIP 47K 5% 1/10W	

(VARIABLE RESISTOR)

Ref. No.	Part No.	Description	Remark
RV001	1-238-092-11	RES, ADJ, CERMET 47K	
RV002	1-238-093-11	RES, ADJ, CERMET 100K	
RV003	1-238-090-11	RES, ADJ, CERMET 10K	
RV004	1-238-091-11	RES, ADJ, CERMET 22K	

(SWITCH)

Ref. No.	Part No.	Description	Remark
S001	1-553-856-00	SWITCH, KEY BOARD	
S002	1-553-856-00	SWITCH, KEY BOARD	

(VIBRATOR)

Ref. No.	Part No.	Description	Remark
X001	1-567-869-11	OSCILLATOR, CERAMIC 9.83MHz	

****

Ref. No.	Part No.	Description	Remark
*	A-7063-395-A	VA-69 BOARD, COMPLETE ********************	

(Ref. No 1,000 Series)

Ref. No.	Part No.	Description	Remark
	1-509-891-00	CONNECTOR, BNC	

(CAPACITOR)

Ref. No.	Part No.	Description	Remark
C003	1-126-103-11	ELECT 470uF 20% 16V	
C004	1-163-038-00	CERAMIC CHIP 0.1uF 25V	

VA-69

Ref. No.	Part No.	Description				Remark
C007	1-126-103-11	ELECT	470uF	20%	16V	
C008	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C011	1-126-103-11	ELECT	470uF	20%	16V	
C012	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C015	1-126-103-11	ELECT	470uF	20%	16V	
C016	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C017	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C018	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C101	1-126-157-11	ELECT	10uF	20%	16V	
C102	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C103	1-126-157-11	ELECT	10uF	20%	16V	
C104	1-126-157-11	ELECT	10uF	20%	16V	
C105	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C106	1-126-157-11	ELECT	10uF	20%	16V	
C107	1-126-157-11	ELECT	10uF	20%	16V	
C108	1-126-157-11	ELECT	10uF	20%	16V	
C109	1-126-157-11	ELECT	10uF	20%	16V	
C110	1-126-157-11	ELECT	10uF	20%	16V	
C111	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C112	1-126-157-11	ELECT	10uF	20%	16V	
C113	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C114	1-126-157-11	ELECT	10uF	20%	16V	
C115	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C116	1-126-157-11	ELECT	10uF	20%	16V	
C117	1-126-103-11	ELECT	470uF	20%	16V	
C118	1-126-157-11	ELECT	10uF	20%	16V	
C119	1-124-360-00	ELECT	1000uF	20%	16V	
C120	1-126-157-11	ELECT	10uF	20%	16V	
C121	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C122	1-126-157-11	ELECT	10uF	20%	16V	
C123	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C124	1-126-103-11	ELECT	470uF	20%	16V	
C125	1-163-239-11	CERAMIC CHIP	33PF	5%	50V	
C126	1-126-157-11	ELECT	10uF	20%	16V	
C127	1-126-157-11	ELECT	10uF	20%	16V	
C128	1-126-157-11	ELECT	10uF	20%	16V	
C129	1-126-157-11	ELECT	10uF	20%	16V	
C130	1-126-157-11	ELECT	10uF	20%	16V	
C131	1-126-103-11	ELECT	470uF	20%	16V	
C132	1-126-157-11	ELECT	10uF	20%	16V	
C133	1-124-360-00	ELECT	1000uF	20%	16V	
C143	1-124-360-00	ELECT	1000uF	20%	16V	
C150	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C152	1-163-110-00	CERAMIC CHIP	51PF	5%	50V	
C160	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C161	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C162	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C163	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C164	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C165	1-163-038-00	CERAMIC CHIP	0.1uF		25V	

Ref. No.	Part No.	Description				Remark
C201	1-126-103-11	ELECT	470uF	20%	16V	
C203	1-126-157-11	ELECT	10uF	20%	16V	
C204	1-124-589-11	ELECT	47uF	20%	16V	
C205	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C206	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C207	1-126-163-11	ELECT	4.7uF	20%	50V	
C208	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C209	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C210	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C211	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C212	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C214	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C215	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C216	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C217	1-126-157-11	ELECT	10uF	20%	16V	
C218	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C219	1-126-157-11	ELECT	10uF	20%	16V	
C220	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C221	1-131-347-00	TANTALUM	1uF	10%	35V	
C223	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C224	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C225	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C226	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C227	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C228	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C229	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C230	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C231	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C232	1-126-157-11	ELECT	10uF	20%	16V	
C233	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C234	1-124-589-11	ELECT	47uF	20%	16V	
C236	1-124-589-11	ELECT	47uF	20%	16V	
C237	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C238	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C239	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C240	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C241	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C243	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C250	1-163-094-00	CERAMIC CHIP	11PF	5%	50V	
C251	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C252	1-163-097-00	CERAMIC CHIP	15PF	5%	50V	
C253	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C254	1-163-227-11	CERAMIC CHIP	10PF	5%	50V	
C401	1-126-103-11	ELECT	470uF	20%	16V	
C402	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C403	1-126-157-11	ELECT	10uF	20%	16V	
C404	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C406	1-126-163-11	ELECT	4.7uF	20%	50V	
C407	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V	
C408	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	

Ref. No.	Part No.	Description				Remark
C414	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C415	1-124-234-00	ELECT	22uF	20%	16V	
C416	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V	
C417	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C418	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V	
C419	1-126-157-11	ELECT	10uF	20%	16V	
C420	1-126-101-11	ELECT	100uF	20%	16V	
C421	1-126-101-11	ELECT	100uF	20%	16V	
C422	1-131-349-00	TANTALUM	2.2uF	10%	35V	
C423	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C424	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C425	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C426	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C427	1-126-163-11	ELECT	4.7uF	20%	50V	
C428	1-124-120-11	ELECT	220uF	20%	25V	
C431	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C434	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C435	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C437	1-126-157-11	ELECT	10uF	20%	16V	
C438	1-126-157-11	ELECT	10uF	20%	16V	
C439	1-126-157-11	ELECT	10uF	20%	16V	
C440	1-131-381-00	TANTALUM	47uF	10%	10V	
C442	1-126-157-11	ELECT	10uF	20%	16V	
C443	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C444	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C449	1-162-637-11	CERAMIC CHIP	0.47uF		16V	
C450	1-162-637-11	CERAMIC CHIP	0.47uF		16V	
C451	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C455	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C456	1-126-301-11	ELECT	1uF	20%	50V	
C457	1-126-301-11	ELECT	1uF	20%	50V	
C460	1-126-157-11	ELECT	10uF	20%	16V	
C461	1-124-589-11	ELECT	47uF	20%	16V	
C462	1-131-363-00	TANTALUM	4.7uF	10%	20V	
C463	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V	
C470	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V	
C471	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C472	1-126-101-11	ELECT	100uF	20%	16V	
C502	1-124-589-11	ELECT	47uF	20%	16V	
C503	1-126-157-11	ELECT	10uF	20%	16V	
C505	1-124-589-11	ELECT	47uF	20%	16V	
C506	1-126-157-11	ELECT	10uF	20%	16V	
C508	1-124-589-11	ELECT	47uF	20%	16V	
C509	1-126-157-11	ELECT	10uF	20%	16V	
C510	1-126-301-11	ELECT	1uF	20%	50V	
C511	1-126-157-11	ELECT	10uF	20%	16V	
C512	1-126-157-11	ELECT	10uF	20%	16V	
C513	1-126-157-11	ELECT	10uF	20%	16V	
C514	1-126-157-11	ELECT	10uF	20%	16V	
C515	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C516	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C518	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C519	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C520	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C521	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C522	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C523	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C524	1-124-120-11	ELECT	220uF	20%	25V	
C525	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C526	1-126-157-11	ELECT	10uF	20%	16V	
C527	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C529	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C530	1-126-157-11	ELECT	10uF	20%	16V	
C531	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C533	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C534	1-126-157-11	ELECT	10uF	20%	16V	
C535	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C537	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C540	1-126-157-11	ELECT	10uF	20%	16V	
C541	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C561	1-163-237-11	CERAMIC CHIP	27PF	5%	50V	
C562	1-163-237-11	CERAMIC CHIP	27PF	5%	50V	
C563	1-163-237-11	CERAMIC CHIP	27PF	5%	50V	
C570	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C571	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C572	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C601	1-163-104-00	CERAMIC CHIP	30PF	5%	50V	
C602	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C603	1-126-157-11	ELECT	10uF	20%	16V	
C604	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C605	1-130-487-00	MYLAR	0.022uF	5%	50V	
C608	1-131-348-00	TANTALUM	1.5uF	10%	35V	
C611	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C612	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C615	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C616	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C617	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C618	1-126-101-11	ELECT	100uF	20%	16V	
C619	1-126-301-11	ELECT	1uF	20%	50V	
C620	1-164-699-11	CERAMIC CHIP	0.0033uF	5%	50V	
C621	1-126-162-11	ELECT	3.3uF	20%	50V	
C622	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C623	1-126-101-11	ELECT	100uF	20%	16V	
C624	1-163-098-00	CERAMIC CHIP	16PF	5%	50V	
C625	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V	
C626	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C627	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V	
C628	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V	
C629	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C630	1-163-038-00	CERAMIC CHIP	0.1uF		25V	

Ref. No.	Part No.	Description			Remark
C631	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C632	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C633	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C635	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C636	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C637	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C638	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C639	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C641	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C642	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C643	1-126-157-11	ELECT	10uF	20%	16V
C644	1-126-157-11	ELECT	10uF	20%	16V
C645	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C646	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C647	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C648	1-126-157-11	ELECT	10uF	20%	16V
C649	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C650	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C651	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C652	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C653	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C654	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C655	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C656	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C657	1-124-589-11	ELECT	47uF	20%	16V
C658	1-124-465-00	ELECT	0.47uF	20%	50V
C660	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C661	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C662	1-126-157-11	ELECT	10uF	20%	16V
C663	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C664	1-124-589-11	ELECT	47uF	20%	16V
C665	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C670	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C680	1-163-102-00	CERAMIC CHIP	24PF	5%	50V
C681	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C682	1-163-104-00	CERAMIC CHIP	30PF	5%	50V
C683	1-163-104-00	CERAMIC CHIP	30PF	5%	50V
C684	1-163-227-11	CERAMIC CHIP	10PF	5%	50V
C685	1-163-227-11	CERAMIC CHIP	10PF	5%	50V
C686	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C690	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C691	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C692	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C693	1-126-154-11	ELECT	47uF	20%	6.3V
C694	1-126-157-11	ELECT	10uF	20%	16V
C695	1-126-157-11	ELECT	10uF	20%	16V
C696	1-124-635-00	ELECT	220uF	20%	6.3V
C697	1-126-157-11	ELECT	10uF	20%	16V
C701	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C702	1-126-157-11	ELECT	10uF	20%	16V
C703	1-126-157-11	ELECT	10uF	20%	16V
C704	1-126-157-11	ELECT	10uF	20%	16V
C705	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C706	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C707	1-126-157-11	ELECT	10uF	20%	16V
C708	1-126-157-11	ELECT	10uF	20%	16V
C709	1-126-157-11	ELECT	10uF	20%	16V
C710	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C711	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C712	1-126-157-11	ELECT	10uF	20%	16V
C713	1-126-157-11	ELECT	10uF	20%	16V
C714	1-126-157-11	ELECT	10uF	20%	16V
C715	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C716	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C717	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C718	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C719	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C720	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C721	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C724	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C729	1-124-120-11	ELECT	220uF	20%	25V
C730	1-124-120-11	ELECT	220uF	20%	25V
C731	1-126-157-11	ELECT	10uF	20%	16V
C732	1-124-589-11	ELECT	47uF	20%	16V
C733	1-126-157-11	ELECT	10uF	20%	16V
C734	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C735	1-163-245-11	CERAMIC CHIP	56PF	5%	50V
C736	1-126-157-11	ELECT	10uF	20%	16V
C737	1-124-120-11	ELECT	220uF	20%	25V
C738	1-126-157-11	ELECT	10uF	20%	16V
C739	1-126-157-11	ELECT	10uF	20%	16V
C741	1-124-589-11	ELECT	47uF	20%	16V
C751	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C753	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C755	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C756	1-163-220-11	CERAMIC CHIP	3PF	0.25PF	50V
C760	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C761	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C762	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C763	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C764	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C765	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C801	1-124-589-11	ELECT	47uF	20%	16V
C803	1-124-120-11	ELECT	220uF	20%	25V
C804	1-126-157-11	ELECT	10uF	20%	16V
C805	1-124-120-11	ELECT	220uF	20%	25V
C806	1-126-157-11	ELECT	10uF	20%	16V
C807	1-126-301-11	ELECT	1uF	20%	50V
C808	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C809	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V

Ref. No.	Part No.	Description				Remark
C810	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C811	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C812	1-124-589-11	ELECT	47uF	20%	16V	
C813	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C814	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C815	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C816	1-126-301-11	ELECT	1uF	20%	50V	
C817	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C818	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C820	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C821	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C822	1-136-169-00	FILM	0.22uF	5%	50V	
C823	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C824	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C826	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C827	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C828	1-124-589-11	ELECT	47uF	20%	16V	
C829	1-163-237-11	CERAMIC CHIP	27PF	5%	50V	
C830	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C840	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C841	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C842	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C843	1-136-169-00	FILM	0.22uF	5%	50V	

〈 CONNECTOR 〉

Ref. No.	Part No.	Description		Remark
* CN001	1-560-893-00	PIN, CONNECTOR	5P	
CN101	1-506-475-11	PIN, CONNECTOR	10P	
CN401	1-506-467-11	PIN, CONNECTOR	2P	
CN402	1-506-469-11	PIN, CONNECTOR	4P	
CN403	1-506-474-11	PIN, CONNECTOR	9P	
CN601	1-506-474-11	PIN, CONNECTOR	9P	
CN602	1-506-469-11	PIN, CONNECTOR	4P	
CN701	1-506-471-11	PIN, CONNECTOR	6P	

〈 JACK 〉

Ref. No.	Part No.	Description		Remark
CNJ101	1-537-458-11	TERMINAL BOARD		

〈 TRIMMER 〉

Ref. No.	Part No.	Description		Remark
CT401	1-141-227-00	CAP, TRIMMER	20PF	
CT601	1-141-245-00	CAP, TRIMMER	30PF	
CT603	1-141-227-00	CAP, TRIMMER	20PF	
CT604	1-141-245-00	CAP, TRIMMER	30PF	
CT801	1-141-260-00	CAP, TRIMMER	50PF	

〈 DIODE 〉

Ref. No.	Part No.	Description		Remark
D101	8-719-108-12	DIODE	RD9.1E-W	
D102	8-719-108-12	DIODE	RD9.1E-W	
D103	8-719-108-12	DIODE	RD9.1E-W	
D105	8-719-104-34	DIODE	1S2836	
D106	8-719-108-12	DIODE	RD9.1E-W	
D107	8-719-108-12	DIODE	RD9.1E-W	
D108	8-719-108-12	DIODE	RD9.1E-W	
D401	8-719-400-18	DIODE	MA152WK	
D402	8-719-800-76	DIODE	1SS226	
D501	8-719-400-18	DIODE	MA152WK	
D502	8-719-400-18	DIODE	MA152WK	
D503	8-719-800-76	DIODE	1SS226	
D504	8-719-800-76	DIODE	1SS226	
D601	8-719-800-09	DIODE	1SV101	
D602	8-713-300-57	DIODE	1T33	
D603	8-719-400-18	DIODE	MA152WK	
D701	8-719-104-34	DIODE	1S2836	
D702	8-719-104-34	DIODE	1S2836	

〈 DELAY LINE 〉

Ref. No.	Part No.	Description	Remark
DL401	1-415-313-00	DELAY LINE (1H)	
DL402	1-415-861-11	DELAY LINE, LC	
DL701	1-415-645-11	DL (LC)	

〈 FILTER 〉

Ref. No.	Part No.	Description	Remark
FL101	1-236-129-11	ENCAPSULATED COMPONENT	
FL102	1-236-129-11	ENCAPSULATED COMPONENT	
FL103	1-236-129-11	ENCAPSULATED COMPONENT	
FL104	1-236-129-11	ENCAPSULATED COMPONENT	
FL105	1-236-129-11	ENCAPSULATED COMPONENT	
FL106	1-236-129-11	ENCAPSULATED COMPONENT	
FL107	1-236-129-11	ENCAPSULATED COMPONENT	
FL108	1-236-129-11	ENCAPSULATED COMPONENT	
FL109	1-236-129-11	ENCAPSULATED COMPONENT	
FL201	1-236-379-11	LPF	
FL203	1-236-384-11	LPF	
FL204	1-235-181-00	FILTER, BAND PASS	
FL501	1-236-379-11	LPF	
FL502	1-236-379-11	LPF	
FL503	1-236-379-11	LPF	
FL801	1-235-181-00	FILTER, BAND PASS	

〈 IC 〉

Ref. No.	Part No.	Description		Remark
IC001	8-759-604-35	IC	M5F78M05	
IC101	8-759-710-07	IC	NJM2234M	
IC102	8-759-710-07	IC	NJM2234M	
IC103	8-759-710-07	IC	NJM2234M	
IC104	8-759-710-86	IC	NJM2233BM	
IC105	8-759-710-86	IC	NJM2233BM	
IC106	8-759-057-40	IC	MC14577BF	
IC107	8-759-057-40	IC	MC14577BF	
IC108	8-759-710-86	IC	NJM2233BM	
IC109	8-759-057-40	IC	MC14577BF	
IC201	8-759-982-05	IC	RC7805FA	
IC202	8-759-057-40	IC	MC14577BF	

VA-69

Ref. No.	Part No.	Description	Remark
IC203	8-752-334-55	IC CXD1175AM	
IC204	8-752-342-61	IC CXD2105AQ	
IC205	8-759-242-74	IC TC7W04F	
IC401	8-759-057-43	IC MC14576BF	
IC403	8-752-036-21	IC CXA1213S	
IC404	8-759-242-64	IC TC4W53F	
IC405	8-759-908-17	IC TL082CPS	
IC501	8-752-030-31	IC CXA1024S	
IC502	8-759-908-17	IC TL082CPS	
IC601	8-752-332-67	IC CXD1217M	
IC603	8-759-242-76	IC TC7W08F	
IC604	8-759-242-64	IC TC4W53F	
IC605	8-759-987-20	IC CXD1229Q	
IC606	8-759-242-74	IC TC7W04F	
IC607	8-759-101-12	IC uPC311G2	
IC608	8-759-925-90	IC SN74HC74ANS	
IC609	8-759-242-74	IC TC7W04F	
IC610	8-752-332-67	IC CXD1217M	
IC611	8-759-008-45	IC MC74HC4538F	
IC612	8-759-927-46	IC SN74HC00ANS	
IC613	8-759-008-45	IC MC74HC4538F	
IC614	8-759-926-29	IC SN74HC175ANS	
IC615	8-759-927-46	IC SN74HC00ANS	
IC616	8-759-925-90	IC SN74HC74ANS	
IC617	8-759-925-72	IC SN74HC02ANS	
IC618	8-759-076-26	IC M50555-190SP	
IC619	8-759-926-18	IC SN74HC157ANS	
IC650	8-759-710-61	IC NJM2229M	
IC660	8-759-242-74	IC TC7W04F	
IC701	8-759-710-86	IC NJM2233BM	
IC702	8-759-710-86	IC NJM2233BM	
IC703	8-759-710-86	IC NJM2233BM	
IC704	8-759-103-25	IC uPD4053BG	
IC705	8-752-033-58	IC V7040	
IC801	8-759-603-56	IC M51272FP	
IC802	8-759-925-90	IC SN74HC74ANS	
IC803	8-759-239-23	IC TC74HC86AF	

〈 COIL 〉

Ref. No.	Part No.	Description	Remark
L001	1-424-154-11	COIL, LINE FILTER	
L002	1-424-154-11	COIL, LINE FILTER	
L003	1-424-154-11	COIL, LINE FILTER	
L004	1-424-154-11	COIL, LINE FILTER	
L101	1-408-977-21	INDUCTOR 39uH	
L201	1-424-090-11	COIL, LINE FILTER	
L401	1-408-969-21	INDUCTOR 8.2uH	
L410	1-410-381-11	INDUCTOR CHIP 10uH	
L601	1-410-377-31	INDUCTOR CHIP 4.7uH	
L650	1-407-169-XX	INDUCTOR 100uH	
L660	1-408-967-21	INDUCTOR 5.6uH	
L670	1-410-381-11	INDUCTOR CHIP 10uH	
L671	1-410-381-11	INDUCTOR CHIP 10uH	
L672	1-410-381-11	INDUCTOR CHIP 10uH	
L673	1-410-381-11	INDUCTOR CHIP 10uH	
L674	1-410-381-11	INDUCTOR CHIP 10uH	
L680	1-410-385-11	INDUCTOR CHIP 22uH	
L701	1-408-975-21	INDUCTOR 27uH	

〈 TRANSISTOR 〉

Ref. No.	Part No.	Description	Remark
Q101	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q102	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q103	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q104	8-729-901-01	TRANSISTOR DTC144EK	
Q105	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q106	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q107	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q108	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q109	8-729-901-01	TRANSISTOR DTC144EK	
Q201	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q202	8-729-216-22	TRANSISTOR 2SA1162-L6	
Q203	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q204	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q205	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q206	8-729-216-22	TRANSISTOR 2SA1162-G	
Q207	8-729-100-66	TRANSISTOR 2SC1623	
Q208	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q209	8-729-216-22	TRANSISTOR 2SA1162-G	
Q210	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q211	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q212	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q401	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q402	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q403	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q404	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q405	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q406	8-729-901-01	TRANSISTOR DTC144EK	
Q501	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q502	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q503	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q504	8-729-216-22	TRANSISTOR 2SA1162-G	
Q505	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q506	8-729-216-22	TRANSISTOR 2SA1162-G	
Q507	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q508	8-729-216-22	TRANSISTOR 2SA1162-G	
Q509	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q510	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q511	8-729-216-22	TRANSISTOR 2SA1162-G	
Q513	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q601	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q602	8-729-901-01	TRANSISTOR DTC144EK	

Ref. No.	Part No.	Description	Remark
Q650	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q651	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q652	8-729-901-01	TRANSISTOR DTC144EK	
Q701	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q702	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q703	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q704	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q705	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q710	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q715	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q716	8-729-901-01	TRANSISTOR DTC144EK	
Q717	8-729-902-96	TRANSISTOR FMS1	
Q718	8-729-902-96	TRANSISTOR FMS1	
Q719	8-729-902-96	TRANSISTOR FMS1	
Q720	8-729-216-22	TRANSISTOR 2SA1162-G	
Q727	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q728	8-729-216-22	TRANSISTOR 2SA1162-G	
Q729	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q730	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q731	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q801	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q802	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q803	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q804	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q805	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q806	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q807	8-729-216-22	TRANSISTOR 2SA1162-L6	
Q808	8-729-216-22	TRANSISTOR 2SA1162-L6	

(RESISTOR)

Ref. No.	Part No.	Description	Remark
R101	1-216-022-00	METAL CHIP 75 5% 1/10W	
R102	1-216-022-00	METAL CHIP 75 5% 1/10W	
R103	1-216-022-00	METAL CHIP 75 5% 1/10W	
R104	1-216-022-00	METAL CHIP 75 5% 1/10W	
R105	1-216-022-00	METAL CHIP 75 5% 1/10W	
R106	1-216-022-00	METAL CHIP 75 5% 1/10W	
R107	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R108	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R109	1-216-041-00	METAL CHIP 470 5% 1/10W	
R110	1-216-047-00	METAL CHIP 820 5% 1/10W	
R111	1-216-041-00	METAL CHIP 470 5% 1/10W	
R112	1-216-047-00	METAL CHIP 820 5% 1/10W	
R113	1-216-041-00	METAL CHIP 470 5% 1/10W	
R114	1-216-047-00	METAL CHIP 820 5% 1/10W	
R115	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R116	1-216-041-00	METAL CHIP 470 5% 1/10W	
R117	1-216-047-00	METAL CHIP 820 5% 1/10W	
R118	1-216-035-00	METAL CHIP 270 5% 1/10W	
R119	1-216-045-00	METAL CHIP 680 5% 1/10W	
R120	1-216-101-00	METAL CHIP 150K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R121	1-216-022-00	METAL CHIP 75 5% 1/10W	
R122	1-216-041-00	METAL CHIP 470 5% 1/10W	
R123	1-216-047-00	METAL CHIP 820 5% 1/10W	
R124	1-216-035-00	METAL CHIP 270 5% 1/10W	
R125	1-216-045-00	METAL CHIP 680 5% 1/10W	
R126	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R127	1-216-022-00	METAL CHIP 75 5% 1/10W	
R128	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R129	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R130	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R131	1-216-047-00	METAL CHIP 820 5% 1/10W	
R132	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R133	1-216-025-00	METAL CHIP 100 5% 1/10W	
R134	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R135	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R136	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R137	1-216-035-00	METAL CHIP 270 5% 1/10W	
R138	1-216-045-00	METAL CHIP 680 5% 1/10W	
R139	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R140	1-216-022-00	METAL CHIP 75 5% 1/10W	
R141	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R145	1-216-029-00	METAL CHIP 150 5% 1/10W	
R160	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R201	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R202	1-216-045-00	METAL CHIP 680 5% 1/10W	
R203	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R204	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R205	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R206	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R207	1-216-047-00	METAL CHIP 820 5% 1/10W	
R208	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R209	1-216-035-00	METAL CHIP 270 5% 1/10W	
R210	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R211	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R212	1-216-041-00	METAL CHIP 470 5% 1/10W	
R213	1-216-047-00	METAL CHIP 820 5% 1/10W	
R214	1-216-025-00	METAL CHIP 100 5% 1/10W	
R215	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R216	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R217	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R218	1-216-037-00	METAL CHIP 330 5% 1/10W	
R219	1-216-033-00	METAL CHIP 220 5% 1/10W	
R220	1-216-045-00	METAL CHIP 680 5% 1/10W	
R221	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R222	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R223	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R224	1-216-035-00	METAL CHIP 270 5% 1/10W	
R225	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R226	1-216-295-00	METAL CHIP 0 5% 1/10W	
R227	1-216-033-00	METAL CHIP 220 5% 1/10W	

Ref. No.	Part No.	Description				Remark
R228	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R229	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R230	1-216-033-00	METAL CHIP	220	5%	1/10W	
R231	1-216-295-00	METAL CHIP	0	5%	1/10W	
R232	1-216-295-00	METAL CHIP	0	5%	1/10W	
R233	1-216-295-00	METAL CHIP	0	5%	1/10W	
R234	1-216-295-00	METAL CHIP	0	5%	1/10W	
R235	1-216-295-00	METAL CHIP	0	5%	1/10W	
R243	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R244	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R245	1-216-047-00	METAL CHIP	820	5%	1/10W	
R246	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R247	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R248	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R249	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R250	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R251	1-216-037-00	METAL CHIP	330	5%	1/10W	
R252	1-216-033-00	METAL CHIP	220	5%	1/10W	
R253	1-216-045-00	METAL CHIP	680	5%	1/10W	
R254	1-216-041-00	METAL CHIP	470	5%	1/10W	
R255	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R256	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R257	1-216-047-00	METAL CHIP	820	5%	1/10W	
R258	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R259	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R260	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R261	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R262	1-216-047-00	METAL CHIP	820	5%	1/10W	
R270	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R272	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R401	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R402	1-216-039-00	METAL CHIP	390	5%	1/10W	
R403	1-216-041-00	METAL CHIP	470	5%	1/10W	
R404	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R405	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R406	1-216-295-00	METAL CHIP	0	5%	1/10W	
R408	1-216-039-00	METAL CHIP	390	5%	1/10W	
R409	1-216-031-00	METAL CHIP	180	5%	1/10W	
R411	1-216-295-00	METAL CHIP	0	5%	1/10W	
R415	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R416	1-216-133-00	METAL CHIP	3.3M	5%	1/10W	
R417	1-216-685-11	METAL CHIP	27K	0.5%	1/10W	
R418	1-216-634-11	METAL CHIP	200	0.5%	1/10W	
R420	1-216-041-00	METAL CHIP	470	5%	1/10W	
R421	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R422	1-216-041-00	METAL CHIP	470	5%	1/10W	
R423	1-216-041-00	METAL CHIP	470	5%	1/10W	
R424	1-216-041-00	METAL CHIP	470	5%	1/10W	
R425	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R426	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R427	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R430	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R431	1-216-295-00	METAL CHIP	0	5%	1/10W	
R432	1-216-295-00	METAL CHIP	0	5%	1/10W	
R433	1-216-295-00	METAL CHIP	0	5%	1/10W	
R436	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R437	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R438	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R439	1-216-101-00	METAL CHIP	150K	5%	1/10W	
R440	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R441	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R442	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R443	1-216-295-00	METAL CHIP	0	5%	1/10W	
R444	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R445	1-216-295-00	METAL CHIP	0	5%	1/10W	
R446	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R451	1-216-295-00	METAL CHIP	0	5%	1/10W	
R453	1-216-295-00	METAL CHIP	0	5%	1/10W	
R457	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R458	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R460	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R461	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R462	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R463	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R464	1-216-047-00	METAL CHIP	820	5%	1/10W	
R465	1-216-295-00	METAL CHIP	0	5%	1/10W	
R466	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R501	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R502	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R503	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R504	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R505	1-216-047-00	METAL CHIP	820	5%	1/10W	
R506	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R507	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R508	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R509	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R510	1-216-047-00	METAL CHIP	820	5%	1/10W	
R511	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R512	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R513	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R514	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R515	1-216-047-00	METAL CHIP	820	5%	1/10W	
R516	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R517	1-216-295-00	METAL CHIP	0	5%	1/10W	
R518	1-216-295-00	METAL CHIP	0	5%	1/10W	
R519	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R525	1-216-031-00	METAL CHIP	180	5%	1/10W	
R526	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R532	1-216-031-00	METAL CHIP	180	5%	1/10W	
R533	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R539	1-216-031-00	METAL CHIP	180	5%	1/10W	
R540	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R541	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R542	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R543	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R544	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R550	1-216-041-00	METAL CHIP	470	5%	1/10W	
R551	1-216-041-00	METAL CHIP	470	5%	1/10W	
R552	1-216-041-00	METAL CHIP	470	5%	1/10W	
R553	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R554	1-216-041-00	METAL CHIP	470	5%	1/10W	
R555	1-216-047-00	METAL CHIP	820	5%	1/10W	
R556	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R557	1-216-041-00	METAL CHIP	470	5%	1/10W	
R558	1-216-047-00	METAL CHIP	820	5%	1/10W	
R559	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R560	1-216-041-00	METAL CHIP	470	5%	1/10W	
R561	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R562	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R563	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R564	1-216-047-00	METAL CHIP	820	5%	1/10W	
R565	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R566	1-216-045-00	METAL CHIP	680	5%	1/10W	
R567	1-216-001-00	METAL CHIP	10	5%	1/10W	
R568	1-216-001-00	METAL CHIP	10	5%	1/10W	
R569	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R570	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R571	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R572	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R573	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R580	1-216-033-00	METAL CHIP	220	5%	1/10W	
R581	1-216-033-00	METAL CHIP	220	5%	1/10W	
R582	1-216-033-00	METAL CHIP	220	5%	1/10W	
R601	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R602	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R603	1-216-295-00	METAL CHIP	0	5%	1/10W	
R605	1-216-295-00	METAL CHIP	0	5%	1/10W	
R607	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R608	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R609	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R616	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R617	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R618	1-216-019-00	METAL CHIP	56	5%	1/10W	
R619	1-216-021-00	METAL CHIP	68	5%	1/10W	
R620	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R621	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R622	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R623	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R624	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R625	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R626	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R627	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R628	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R629	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R630	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R631	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R632	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R633	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R634	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R635	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R636	1-216-295-00	METAL CHIP	0	5%	1/10W	
R638	1-216-682-11	METAL CHIP	20K	0.5%	1/10W	
R639	1-216-679-11	METAL CHIP	15K	0.5%	1/10W	
R640	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R641	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R642	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R643	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R644	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R645	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R646	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R652	1-216-688-11	METAL CHIP	36K	0.5%	1/10W	
R653	1-216-669-11	METAL CHIP	5.6K	0.5%	1/10W	
R654	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R655	1-216-295-00	METAL CHIP	0	5%	1/10W	
R656	1-216-295-00	METAL CHIP	0	5%	1/10W	
R657	1-216-047-00	METAL CHIP	820	5%	1/10W	
R658	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R659	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R660	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R661	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R662	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R663	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R664	1-216-047-00	METAL CHIP	820	5%	1/10W	
R667	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R668	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R669	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R670	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R671	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R672	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R673	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R674	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R682	1-216-023-00	METAI CHIP	82	5%	1/10W	(AEP/UK/AUS)
R683	1-216-017-00	METAI CHIP	47	5%	1/10W	(AEP/UK/AUS)
R701	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R702	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R703	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R704	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R705	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R706	1-216-049-00	METAL CHIP	1K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R707	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R708	1-216-041-00	METAL CHIP	470	5%	1/10W	
R709	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R710	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R711	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R712	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R713	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R714	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R721	1-216-041-00	METAL CHIP	470	5%	1/10W	
R722	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R730	1-216-041-00	METAL CHIP	470	5%	1/10W	
R731	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R732	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R733	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R734	1-216-041-00	METAL CHIP	470	5%	1/10W	
R735	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R736	1-216-041-00	METAL CHIP	470	5%	1/10W	
R737	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R738	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R739	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R740	1-216-041-00	METAL CHIP	470	5%	1/10W	
R741	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R742	1-216-041-00	METAL CHIP	470	5%	1/10W	
R743	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R744	1-216-041-00	METAL CHIP	470	5%	1/10W	
R745	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R746	1-216-041-00	METAL CHIP	470	5%	1/10W	
R747	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R748	1-216-041-00	METAL CHIP	470	5%	1/10W	
R753	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R754	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R755	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R756	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R757	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R758	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R766	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R767	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R768	1-216-047-00	METAL CHIP	820	5%	1/10W	
R769	1-216-043-00	METAL CHIP	560	5%	1/10W	
R770	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R771	1-216-043-00	METAL CHIP	560	5%	1/10W	
R772	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R773	1-216-025-00	METAL CHIP	100	5%	1/10W	
R774	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R775	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R776	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R777	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R778	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R779	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R780	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R781	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R782	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R783	1-216-047-00	METAL CHIP	820	5%	1/10W	
R790	1-216-041-00	METAL CHIP	470	5%	1/10W	
R791	1-216-041-00	METAL CHIP	470	5%	1/10W	
R792	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R793	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R794	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R795	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R801	1-216-650-11	METAL CHIP	910	0.5%	1/10W	
R802	1-216-625-11	METAL CHIP	82	0.5%	1/10W	
R803	1-216-615-11	METAL CHIP	33	0.5%	1/10W	
R804	1-216-643-11	METAL CHIP	470	0.5%	1/10W	
R805	1-216-295-00	METAL CHIP	0	5%	1/10W	
R806	1-216-661-11	METAL CHIP	2.7K	0.5%	1/10W	
R807	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R808	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R809	1-216-039-00	METAL CHIP	390	5%	1/10W	
R810	1-216-037-00	METAL CHIP	330	5%	1/10W	
R811	1-216-047-00	METAL CHIP	820	5%	1/10W	
R812	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R813	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W	
R814	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W	
R815	1-216-043-00	METAL CHIP	560	5%	1/10W	
R816	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R817	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R818	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R819	1-216-047-00	METAL CHIP	820	5%	1/10W	
R820	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W	
R821	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W	
R822	1-216-043-00	METAL CHIP	560	5%	1/10W	
R823	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R824	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R825	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R826	1-216-047-00	METAL CHIP	820	5%	1/10W	
R827	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W	
R828	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W	
R829	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W	
R830	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W	
R831	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R832	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R833	1-216-295-00	METAL CHIP	0	5%	1/10W	
R834	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R835	1-216-031-00	METAL CHIP	180	5%	1/10W	
R837	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R838	1-216-031-00	METAL CHIP	180	5%	1/10W	
R840	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R841	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R843	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R844	1-216-047-00	METAL CHIP	820	5%	1/10W	

Ref. No.	Part No.	Description	Remark
R845	1-216-295-00	METAL CHIP 0 5% 1/10W	
R846	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R847	1-216-647-11	METAL CHIP 680 0.5% 1/10W	

(VARIABLE RESISTOR)

Ref. No.	Part No.	Description	Remark
RV101	1-238-087-11	RES, ADJ, CERMET 1K	
RV102	1-238-087-11	RES, ADJ, CERMET 1K	
RV103	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV104	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV105	1-238-087-11	RES, ADJ, CERMET 1K	
RV202	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV203	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV401	1-238-092-11	RES, ADJ, CERMET 47K	
RV402	1-238-086-11	RES, ADJ, CERMET 470	
RV403	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV404	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV408	1-238-090-11	RES, ADJ, CERMET 10K	
RV409	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV410	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV501	1-238-091-11	RES, ADJ, CERMET 22K	
RV502	1-238-091-11	RES, ADJ, CERMET 22K	
RV503	1-238-087-11	RES, ADJ, CERMET 1K	
RV504	1-238-087-11	RES, ADJ, CERMET 1K	
RV505	1-238-087-11	RES, ADJ, CERMET 1K	
RV506	1-238-087-11	RES, ADJ, CERMET 1K	
RV507	1-238-087-11	RES, ADJ, CERMET 1K	
RV508	1-238-087-11	RES, ADJ, CERMET 1K	
RV601	1-238-090-11	RES, ADJ, CERMET 10K	
RV602	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV701	1-238-087-11	RES, ADJ, CERMET 1K	
RV702	1-238-087-11	RES, ADJ, CERMET 1K	
RV703	1-238-087-11	RES, ADJ, CERMET 1K	
RV706	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV707	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV801	1-238-087-11	RES, ADJ, CERMET 1K	
RV802	1-238-088-11	RES, ADJ, CERMET 2.2K	
RV803	1-238-087-11	RES, ADJ, CERMET 1K	
RV804	1-238-088-11	RES, ADJ, CERMET 2.2K	
RV805	1-238-087-11	RES, ADJ, CERMET 1K	
RV806	1-238-087-11	RES, ADJ, CERMET 1K	
RV807	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV809	1-238-086-11	RES, ADJ, CERMET 470	

(TRANSFORMER)

Ref. No.	Part No.	Description	Remark
T401	1-425-928-00	TRANSFORMER, DELAY ADJUSTING	

(VIBRATOR)

Ref. No.	Part No.	Description	Remark
X401	1-567-860-11	OSCILLATOR, CRYSTAL 4.433618MHz	
X402	1-577-611-11	OSCILALTOR, CERAMIC	
X601	1-567-344-21	VIBRATOR, CRYSTAL (VCO)	

****

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remark
*	1-949-132-31	HARNESS (VS-154)	
*	1-949-134-31	HARNESS (PV-109)	
3	1-466-613-31	SWITCH BLOCK, CONTROL	
5	1-509-891-00	CONNECTOR, BNC	
⚠64	0-343-972-00	POWER BLOCK (SWITCHING REGULATOR)	
123	1-543-950-11	CORE, FERRITE	
M1401	1-541-309-11	MOTOR, L (RF-370C)(PLATEN DRIVING)	
M1402	1-541-309-11	MOTOR, L (RF-370C)(T HEAD UP/DOWN)	
M1403	1-541-684-12	MOTOR, DC (FAN MOTOR)	
TH901	1-543-774-11	HEAD, THERMAL (TH66207)	

****

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
	1-465-977-31	REMOTE COMMANDER (RMT-7)	
⚠	1-590-910-11	CORD SET, POWER	
*	3-694-922-01	SHEET, PROTECTION	
	3-755-834-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN)	
*	3-947-749-01	CUSHION (UPPER)	
*	3-947-750-01	CUSHION (LOWER)	
*	3-947-751-41	INDIVIDUAL CARTON	
	7-621-775-10	SCREW +B 2.6X4	
	A-8262-142-A	TRAY ASSY, PAPER	

****

****
HARDWARE LIST
****

Ref. No.	Part No.	Description	Remark
#1	7-621-255-25	SCREW +P 2X4	
#2	7-621-775-40	SCREW +B 2.6X8	
#3	7-624-105-04	STOP RING 2.3, TYPE -E	
#4	7-624-106-04	STOP RING 3.0, TYPE -E	
#5	7-624-109-04	STOP RING 5.0, TYPE -E	
#6	7-682-561-04	SCREW +B 4X8	
#7	7-682-646-09	SCREW +PS 3X5	
#8	7-682-666-09	SCREW +PS 4X20	
#9	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#10	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#11	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
#12	7-682-547-04	SCREW +BVTT 3X6 (S)	
#13	7-682-648-09	SCREW (+BVW)(3X8)(SN), TAPPING	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 9

ADJUSTMENTS

During the adjustments, refer to the layout diagrams for adjustment related parts beginning from page 198.

9-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for the adjustments.

9-1-1. Equipments to be Used

1) Monitor TV
2) Oscilloscope (2 phenomena), band above 30 MHz, with delay mode.
   (Unless specified otherwise, use 10:1 probe.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Regulated power supply
7) Power supply block extension cord
   (To use between CN4 and MD Head.) (8P.1 mm)
   Part code: J-6082-119-A
8) 0.7 mm and 1.1 mm clearance gauges
9) Video printing paper
10) Video ribbon cassette

9-1-2. Connecting the Equipments

Connect the measuring instrument as shown in Fig. 9-1, according to the indication of input terminal (S video or video), and perform the adjustments. The input terminal to be used is specified in the ( ) in the signal column. Either one can be used if specifications are not given. Set the Auto picture switch (AGC switch) of the operating switch block to [Off] unless specified otherwise.

Note: If the video input is used in adjustments which are specified for the S video input to be used, there may be cases in which adjusted parts fails to satisfy the given specifications of this unit. Be sure to use the input specified.
If the S video output terminal VTR is used as the signal source during the adjustments, this VTR will influence the performance of the unit. It is therefore recommended that a pattern generator with a Y/C separation output terminal be used.

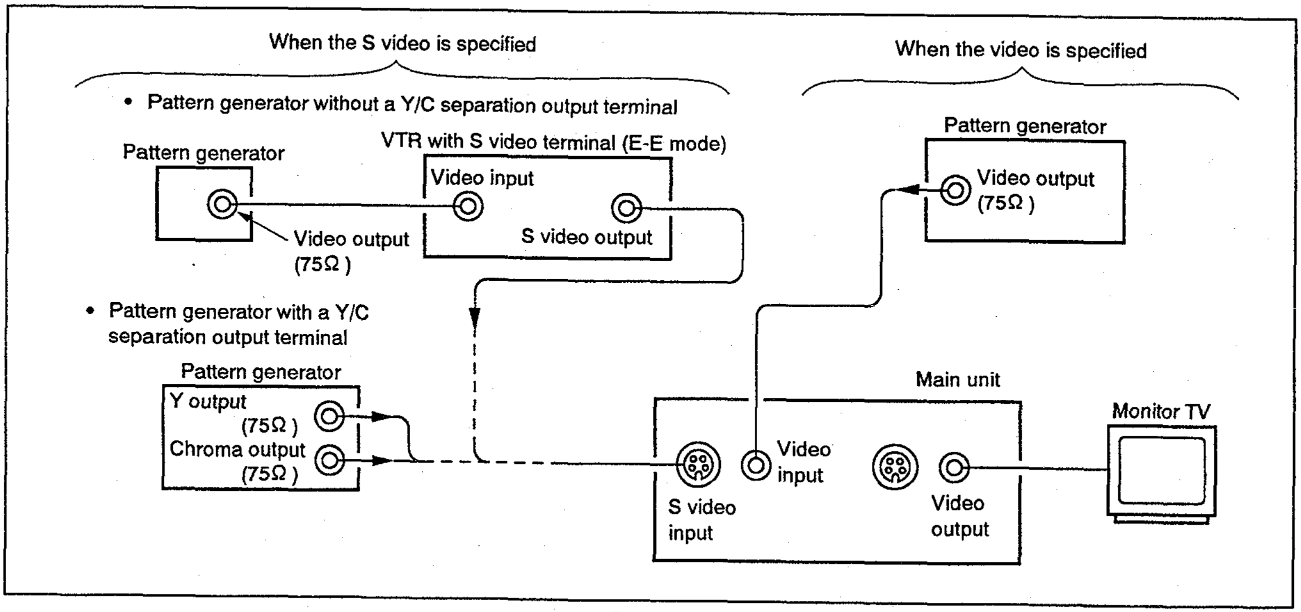

When the S video is specified
• Pattern generator without a Y/C separation output terminal
Pattern generator
VTR with S video terminal (E-E mode)
Video input
Video output
(75Ω)
S video output
• Pattern generator with a Y/C separation output terminal
Pattern generator
Y output
(75Ω)
Chroma output
(75Ω)
When the video is specified
Pattern generator
Video output
(75Ω)
Main unit
S video
input
Video
input
Video
output
Monitor TV

Fig. 9-1

9-1-3. Checking the Input Signal

As the video signal obtained from the pattern generator is used as the adjustment signal during the video circuit adjustment, this video output signal must satisfy the given specification.

1. When S Video Input

Two types of color bar signals are used for the S video input.

① Color bar with white 100%

Connect an oscilloscope to the Y signal terminal of the S video input terminal. Check that the sync signal of the Y signal is 300 mV, the amplitude of the video section is 700 mV,, and that the setup level is 0 mV. (If a VTR with a S video output terminal is used, check that there are no residual chroma and burst signals as well.) Connect the oscilloscope to the chroma signal terminal of the S video input terminal, and check that the amplitude of the burst signal of the chroma signal is 300 mV and flat. Check that the amplitude ratio of the burst signal to the chroma signal is 0.30:0.66. The Y and chroma signals used for the adjustments are shown in Fig. 9-2.

Setup level: Electric potential difference between black and pedestal

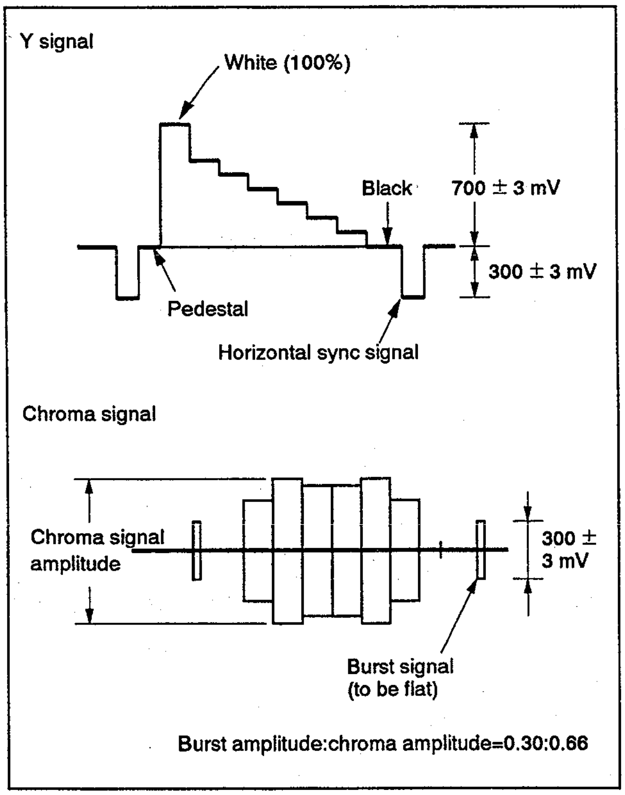

Y signal
White (100%)
Black
700 ± 3 mV
300 ± 3 mV
Pedestal
Horizontal sync signal
Chroma signal
Chroma signal amplitude
300 ± 3 mV
Burst signal (to be flat)
Burst amplitude:chroma amplitude=0.30:0.66

Fig. 9-2 Color Bar with white 100% Signal of Pattern Generator (When terminated at 75Ω)

② Color bar with white 75%

Connect an oscilloscope to the Y signal terminal of the S video input terminal. Check that the sync signal of the Y signal is 300 mV, the amplitude of the video section is 525 mV, and that the setup level is 0 mV. (If a VTR with a S video output terminal is used, check that there are no residual chroma and burst signals as well.) Connect the oscilloscope to the chroma signal terminal of the S video input terminal, and check that the amplitude of the burst signal of the chroma signal is 300 mV and flat. Check that the amplitude ratio of the burst signal to the chroma signal is 0.30:0.66. The Y and chroma signals used for the adjustments are shown in Fig. 9-3.

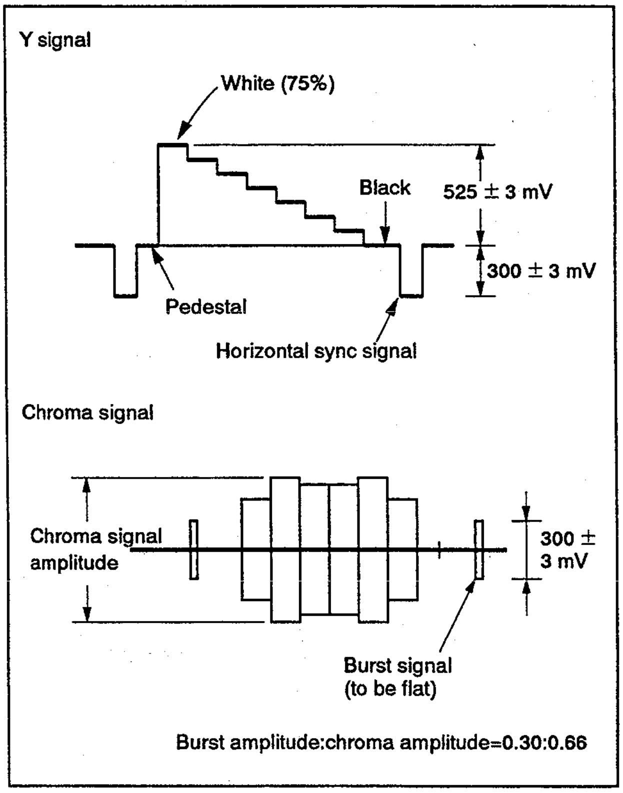

Y signal
White (75%)
Black
525 ± 3 mV
300 ± 3 mV
Pedestal
Horizontal sync signal
Chroma signal
Chroma signal amplitude
300 ± 3 mV
Burst signal (to be flat)
Burst amplitude:chroma amplitude=0.30:0.66

Fig. 9-3 Color Bar with white 75% Signal of Pattern Generator (When terminated at 75Ω)

2. When Video Input

Connect an oscilloscope to the video input terminal, and check that the amplitude of the sync signal of the video signal is 300 mV, the amplitude of the video section is 700 mV, the setup level is 0 mV, and that the amplitude of the burst signal is 300 mV and flat. Check that the level ratio of the burst signal to the "red" signal is 0.30:0.66.

The video signal (color bar) used for adjustments is shown in Fig. 9-4.

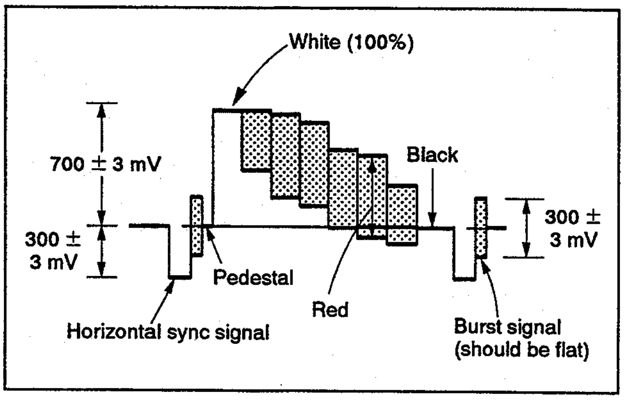


Fig. 9-4 Color Bar Signal of Pattern Generator (When terminated at 75Ω)

9-1-4. Test Mode

The test mode can be set by turning the power supply on while pressing S002 (TEST) on the SY-50 board. The following operations will be carried out when the buttons of the operating switch block are pressed at the test mode.

SY-50 board Parts view

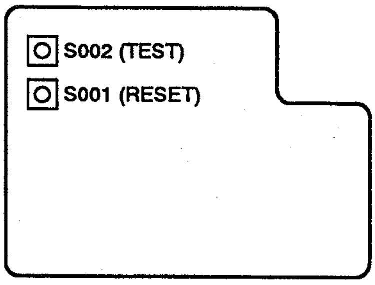


Fig. 9-5

Demonstration	Generates the stair step pattern for head voltage adjustments. (It is displayed after 5 seconds since the button has been pressed.)
∧	Head 1 up. The thermal head moves up one position each time this button is pressed.

1. Home position (Initial position)
↓
2. Ribbon rewinding position
↓
3. Paper feed position
↓
4. Loading position
↓
5. Printing position

∨	Head 1 down. The thermal head goes down one position each time this button is pressed.
YES	Head home position. The thermal head returns to the initial position after this button is pressed.
<	Platen rotation. The platen motor rotates in the positive direction while this button is pressed.
>	Platen reversion. The platen motor rotates in the opposite direction while this button is pressed.
NO	Platen rotation slow. The platen motor rotates in the positive direction slowly while this button is pressed.

Note: When performing the head up/down in the test mode, be sure to do so after pressing the YES button and returning the head to the home position. If not, the head may go beyond the most top position (printing position).

9-2. POWER SUPPLY SECTION ADJUSTMENTS

1. 5V Voltage Adjustment (Power supply block)

Mode	POWER ON
Measurement Point	Pin ④ of CN1
Measuring Instrument	Digital voltmeter
Adjusting Element	VR201
Specified Value	5.0 ± 0.1 Vdc

2. 12V System Input Voltage Adjustment (Power supply block)

Mode	POWER ON
Measurement Point	Voltage between pins of CN8
Measuring Instrument	Digital voltmeter
Adjusting Element	VR301
Specified Value	13.05 ± 0.05 Vdc

3. Power Supply Voltage Checks (Power supply block)

Mode	POWER ON
Measuring Instrument	Digital voltmeter
12V. UR voltage check	
Measurement Point	Pin ① of CN2
Specified Value	12.0 ± 0.1 Vdc
12V voltage check	
Measurement Point	Pin ③ of CN1
Specified Value	12.0 ± 0.1 Vdc
S12V voltage check	
Measurement Point	Pin ① of CN1
Specified Value	12.0 ± 0.1 Vdc
S9V voltage check	
Measurement Point	Pin ② of CN1
Specified Value	9.0 ± 0.1 Vdc
S5V voltage check	
Measurement Point	Pin ④ of CN2
Specified Value	5.0 ± 0.1 Vdc

4. Head Power Supply Adjustment (Power supply block)

It is necessary to perform "Head Voltage Adjustment" if the following adjustments have been performed. It is therefore necessary to make a sample of printing density before performing adjustments. For details on how to make the sample, refer to "Head Voltage Adjustment".

4-1. 3V Reference Voltage Adjustment

Mode	POWER ON
Measurement Point	Voltage between pins of CN7
Measuring Instrument	Digital voltmeter
Adjusting Element	VR103
Specified Value	3.00 ± 0.01 Vdc

4-2. Minimum and Maximum Head Voltage Values Adjustments

Measurement Point	+: HEAD TP (H) –: HEAD TP (G)
Measuring Instrument	Digital voltmeter
Adjusting Element	Minimum value: VR101 Maximum value: VR102
Specified Value	Minimum value: 15.15 ± 0.06 Vdc Maximum value: 23.10 ± 0.10 Vdc

Preparation: Adjust the regulated power output voltage to 4.0 ± 0.1 Vdc, and prepare to connect it to Pin ⑧ of CN3.

Adjusting method:

1) Remove the AC plug from the outlet.
2) Remove CN1, 2, 3, 4.
3) Connect the AC plug to the outlet.
4) Connect Pin ⑧ (V CONT) of CN3 to Pin ⑦ (GND) with a jumper wire.
5) Adjust the HEAD TP voltage to 15.15 ± 0.06 Vdc with VR101.
6) Remove the jumper wire between Pin ⑧ of CN3 and Pin ⑦.
7) Connect the 4 Vdc power supply to Pin ⑧ of CN3 (V CONT).
8) Adjust the HEAD TP voltage to 23.10 ± 0.10 Vdc with VR102.
9) Disconnect the 4 Vdc power supply of Pin ⑧ of CN3.
10) Remove the AC plug from the outlet.
11) Connect CN1, 2, 3, 4.
12) Perform "Head Voltage Adjustment".

5. Head Voltage Adjustment (Power supply block)

Before beginning, use the old head (Note 1) or a normal set to print two continuous stair step patterns (Note 2). Use the second piece as the sample of printing density.

Note 1) Used only when the bad contents of the old head (damaged head) are not completely damaged by the black and white line and so on.

2) Refer to "Test Mode" for how to generate the stair step pattern.

Mode	Test
Measurement Point	+: TP1 (H) –: TP2 (G)
Measuring Instrument	Digital voltmeter
Adjusting Element	VR101
Specified Value	Coarse adjustment: Refer to Table 9-1 Fine adjustment: The printing density should be the same as that of the sample.

Adjusting method:

1) While pressing S002 (TEST) on the SY-50 board, press the Power button on the front panel and turn on the power supply. (Test mode setting)
2) Press the Demonstration button of the operating switch block. (After 5 seconds, the stair step pattern appears on the monitor screen.)
3) Set S801 on the HC-10 board to the "adjust" position (thermistor TH1 side).
4) Adjust the head voltage (voltage between TP1 and TP2) to the specified value of head voltage coarse adjustment (refer to Table 9-1) with VR101.
5) Set S801 on the HC-10 board to the "Normal" position (CN1 side).
6) After specifying the printing number as 2 on the menu display, press the Print button, and print the stair step pattern on two sheets continuously.
7) Compare the density of the second print to that of the sample, and perform the following adjustments if the densities are different.
8) Set S801 on the HC-10 board to the "Adjust" position.
9) Adjust VR101 as follows according to the printing density.
   Darker than the sample: Decrease the head voltage.
   Lighter than the sample: Increase the head voltage.
10) Set S801 on the HC-10 board to the "Normal" position.
11) Print the stair step pattern on two sheets continuously.
12) Compare the density of the second print to that of the sample, and repeat steps 8 to 12 if the densities are different.
    Note: Only one print will be required after the second time.
13) Check that S801 on HC-10 board is at the "Normal" position.

Coarse Adjustment Specification Table

Calculate the head voltage coarse adjustment specified value from the resistance values of the thermal head using the following table. The resistance value is written on the label pasted on the thermal head.

Thermal head resistance value (Ω)	Head voltage coarse adjustment specified value (Vdc)
Less than 1749	17.26 ± 0.04
Less than 1750 to 1759	17.30 ± 0.04
Less than 1760 to 1769	17.34 ± 0.04
Less than 1770 to 1779	17.38 ± 0.04
Less than 1780 to 1789	17.42 ± 0.04
Less than 1790 to 1799	17.46 ± 0.04
Less than 1800 to 1809	17.50 ± 0.04
Less than 1810 to 1819	17.54 ± 0.04
Less than 1820 to 1829	17.58 ± 0.04
Less than 1830 to 1839	17.62 ± 0.04
Less than 1840 to 1849	17.66 ± 0.04
Less than 1850 to 1859	17.70 ± 0.04
Less than 1860 to 1869	17.74 ± 0.04
Less than 1870 to 1879	17.78 ± 0.04
Less than 1880 to 1889	17.82 ± 0.04
Less than 1890 to 1899	17.86 ± 0.04
Less than 1900 to 1909	17.90 ± 0.04
Less than 1910 to 1919	17.94 ± 0.04
Less than 1920 to 1929	17.98 ± 0.04
Less than 1930 to 1939	18.02 ± 0.04
Less than 1940 to 1949	18.06 ± 0.04
Above 1950	18.10 ± 0.04

Table 9-1

Stair Step Pattern

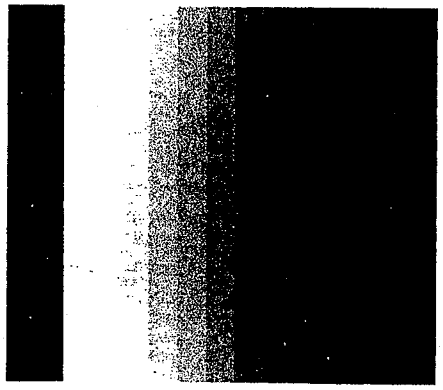


Fig. 9-6

9-3. MECHANISM BLOCK AND SYSTEM CONTROL CIRCUIT ADJUSTMENTS

1. Replacing the Thermal Head

1) Before replacing the head, print the stair step pattern using the old head (faulty head).

   Note 1) Used only when the bad contents of the head are not completely damaged by the black and white line and so on.

   2) Refer to "Test Mode" for details on how to generate the stair step pattern.

2) Remove the bottom cover.
3) Remove the head guide (S) ❶.
4) Remove the heat sink ❷.
5) Remove the thermal head connector as shown in Fig. C.
6) Replace the thermal head.
7) Assemble in the reverse order.
8) Perform "Head Voltage Adjustment" of power supply section adjustments.

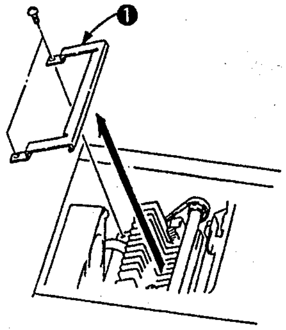


Fig. A

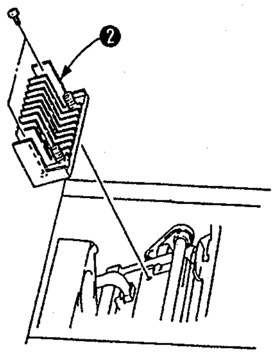


Fig. B

- Removing the connector

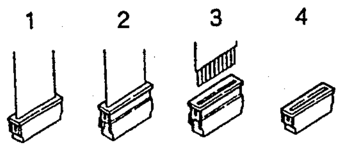


Fig. C

Fig. 9-7

2. Head End Point Position Check

Mode	Test
Signal	Not required
Measurement Point	0.7 mm and 1.1 mm clearance gauges
Measuring Instrument	Clearance should be above 0.7 mm but below 1.1 mm

Checking method:

1) Remove the ribbon cassette.
2) While pressing S002 (TEST) on the SY-50 board, turn on the power supply. (Setting the test mode.)
3) Press the YES button (head home position), and return the head to the home position.
4) Press the ∧ (head 1 up) button four times on the operating panel block, and adjust to "Print position".
5) Insert the clearance gauges between the ribbon roller arm and stopper, and check that the 0.7 mm one passes through, and that the 1.1 mm does not.
6) Press the YES button on the operating panel block, and return the head to the "home position".

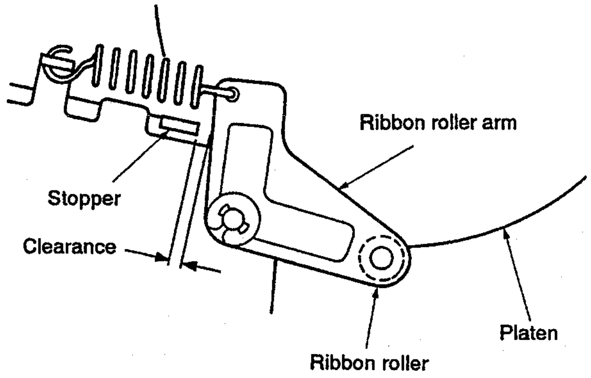


Fig. 9-8

3. Ribbon Code Sensor Adjustment (SY-50 board)

Mode	POWER ON
Signal	Not required
Measurement Point	Pin ③ of CN003 (RIBBON S)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV004
Specified Value	0.90 ± 0.06 Vdc

Adjusting method:
1) Remove the ribbon cassette.
2) Adjust the voltage of Pin ③ of CN003 (RIBBON S) to 0.90 ± 0.06 Vdc with RV004.
3) Wind up the ribbon cassette, and adjust so that the ribbon head indication mark (black) covers the ribbon sensor hole.
4) Set the ribbon cassette on the unit.
5) Check that the voltage of Pin ③ of CN003 is above 3.5 Vdc.
6) Remove the ribbon cassette, and rewind it so that the "Ribbon head indication mark" comes to the center.

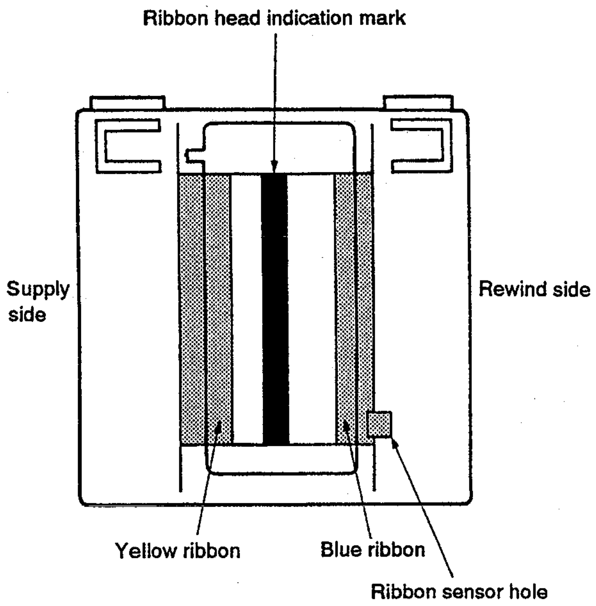


Fig. 9-9 Ribbon Cassette

4. Paper Set Sensor DNP Adjustment (SY-50 Board)

Mode	Test
Signal	Not required
Measurement Point and Measuring Instrument	Digital voltmeter Pin ④ of CN016 (P SET SEN) Oscilloscope (DC range) Pin ② of CN003 (P LOAD SEN)
Adjusting Element	RV002
Specified Value	2.20 ± 0.06 Vdc

Note: Remove the ribbon cassette.

Adjusting method:
1) Set the postcard printing paper on the paper feed tray, and attach it to the unit.
2) While pressing S002 on the SY-50 board (TEST), turn on the power supply. (Setting the test mode.)
3) Press the $\boxed{\text{YES}}$ button (head home position) on the operating block panel, and return the head to the home position.
4) Check that the voltage of Pin ② of CN003 (P LOAD SEN) is above 4 Vdc.
5) Press the $\boxed{\wedge}$ button (head 1 up) on the operating block panel twice, and adjust it to "paper feed position".
6) Press the $\boxed{>}$ (platen reversion) continuously until the voltage of Pin ② of CN003 (P LOAD SEN) decreases below 2.2 Vdc.
7) Press the $\boxed{\wedge}$ (head 1 up) button twice, and adjust to "Print position".
8) Press the $\boxed{<}$ (platen rotation) button continuously, and wind the print paper around the platen. Stop pressing when the adjusting mark of the print paper is on the left end of the platen when viewed from the front of the unit.
9) Adjust the voltage of Pin ④ of CN016 (P SET SEN) to 2.20 ± 0.06 Vdc with RV002.
10) Press the $\boxed{>}$ (platen reversion) button continuously until the print paper flows out.
11) Press the $\boxed{\text{YES}}$ button, and return the head to the "home position".

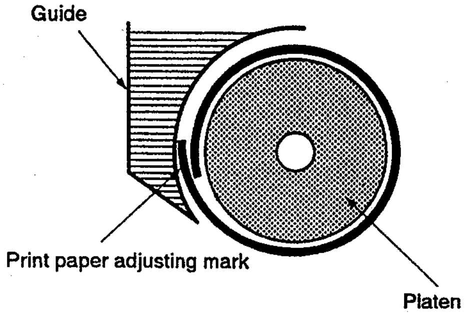


Fig. 9-10

5. FG Sensor Adjustment (SY-50 Board)

Mode	Test
Signal	Not required
Measurement Point	Pin ③ of CN016 (FG SEN)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV003
Specified Value	V1=3.0 ± 0.2 Vdc V2=Above 2.0 Vp-p

Adjusting method:

1) While pressing S002 on the SY-50 board (TEST), turn on the power supply. (Setting the test mode)
2) While pressing the [<] (platen rotation) button, adjust V1 to 3.0 ± 0.2 Vdc with RV003. Check that V2 is above 2.0 Vp-p at the same time.

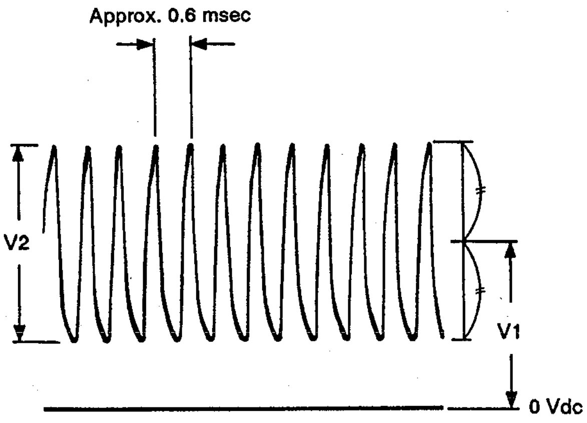


Fig. 9-11

6. Line Pulse Adjustment (SY-50 board)

Mode	POWER ON, Print
Signal	Arbitrary
Measurement Point	TP015 (Pin ⑪ of CN018: TIMING PULSE)
Measuring Instrument	Oscilloscope (DC range) Trigger mode: NORMAL
Adjusting Element	RV001
Specified Value	T1=18.5 ± 0.5 msec

Note: Be sure to perform head voltage adjustment after this adjustment.

Adjusting method:

1) Record the arbitrary signal in the memory, and press the [Print] button.
2) Adjust the TIMING PULSE cycle (T1) of the printing period to the specified value with RV001.

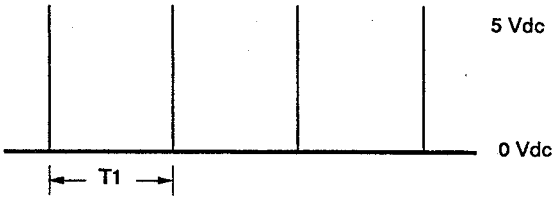


Fig. 9-12

9-4. VIDEO CIRCUIT ADJUSTMENT

Perform the adjustments in their listed order. Before beginning, check that the input signal satisfies the specifications shown in Fig. 9-2, 9-3 and 9-4.
Check that the Auto picture (AGC) on the operating block panel is at the "Off" position.

1. THRU VIDEO Output Level Adjustment (VA-69 board)

Mode	Standby
Signal	Color bar (Video input)
Measurement Point	TP124 (Terminate the video output terminal of CNJ101 at 75Ω)
Measuring Instrument	Oscilloscope
Adjusting Element	RV105
Specified Value	A=1.00 ± 0.03V

Note: Check that nothing has been inserted into both the front and rear S video input terminals.

Adjusting method:
1) Check that the power display lamp is red.
2) Adjust the video level (A) to the specified value with RV105.

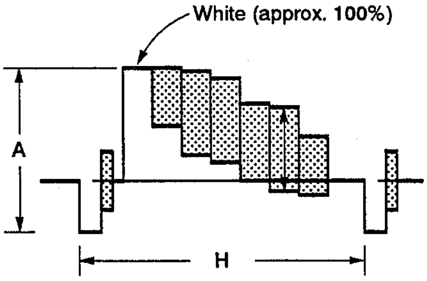


Fig. 9-13

2. THRU Y Output Level Adjustment (VA-69 Board)

Mode	Standby
Signal	Color bar with white 100% (S video input)
Measurement Point	TP118 (Terminate the S video Y output terminal of CNJ101 at 75Ω)
Measuring Instrument	Oscilloscope
Adjusting Element	RV101
Specified Value	A=1.00 ± 0.03V

Adjusting method:
1) Check that the power supply display lamp is red.
2) Adjust the Y level (A) to the specified value with RV101.

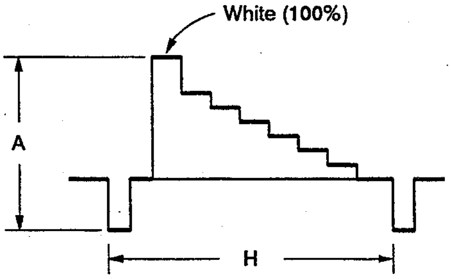


Fig. 9-14

3. THRU CHROMA Output Level Adjustment (VA-69 board)

Mode	Standby
Signal	Color bar with white 100% (S video input)
Measurement Point	TP121 (Terminate the S video chroma output terminal of CNJ101 at 75 Ω)
Measuring Instrument	Oscilloscope
Adjusting Element	RV102
Specified Value	A=300 ± 10 mVp-p

Adjusting method:
1) Check that the power supply display lamp is red.
2) Adjust the burst level (A) to the specified value with RV102.

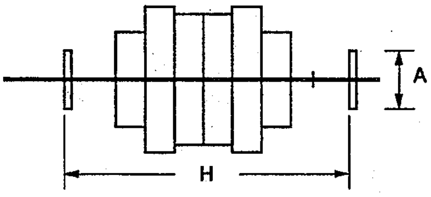


Fig. 9-15

4. Y/C Mix Ratio Adjustment (VA-69 board)

Mode	Standby
Signal	Color bar with white 100% (S video input)
Measurement Point	TP124 (Terminate the video output terminal of CNJ101 at 75Ω)
Measuring Instrument	Oscilloscope
Adjusting Element	Y level: RV104 Chroma level: RV103
Specified Value	Y level: A=1.00 ± 0.03V Chroma level: B=300 ± 10 mVp-p

Adjusting method:

1) Check that the power supply display lamp is red.
2) Adjust the Y level (A) to the specified value with RV104.
3) Adjust the burst level (B) to the specified value with RV103.
4) Repeat steps 2) and 3).

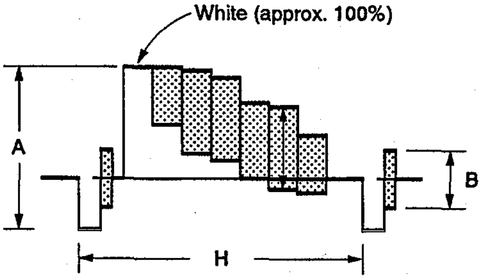


Fig. 9-16

5. Y/C Separation Y Level Adjustment (VA-69 board)

Mode	Standby
Signal	Color bar with white 100% (video input)
Measurement Point	TP118 (Terminate the S video Y output terminal of CNJ101 at 75Ω)
Measuring Instrument	Oscilloscope
Adjusting Element	RV203
Specified Value	A=1.00 ± 0.03V

Note: Check that nothing has been inserted into both the front and rear S video input terminals.

Adjusting method:

1) Check that the power supply display lamp is red.
2) Adjust the Y level (A) to the specified value with RV203.

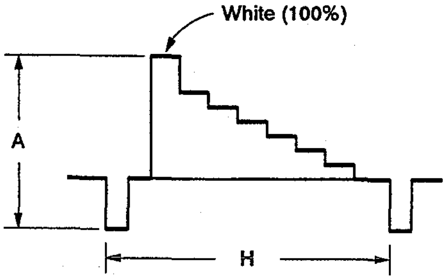


Fig. 9-17

6. Y/C Separation CHROMA Level Adjustment

Mode	Standby
Signal	Color bar with white 100% (video input)
Measurement Point	TP121 (Terminate the S video chroma output terminal of CNJ101 at 75 Ω)
Measuring Instrument	Oscilloscope
Adjusting Element	RV202
Specified Value	A=300 ± 10 mV

Note: Check that nothing has been inserted into both the front and rear S video input terminals.

Adjusting method:
1) Check that the power supply display lamp is red.
2) Adjust the burst level (A) to the specified value with RV202.

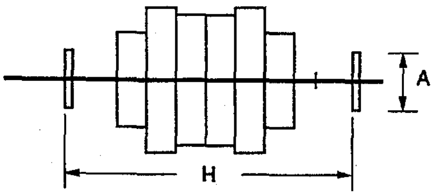


Fig. 9-18

7. Decoder Free-run Frequency Adjustment (VA-69 board)

Mode	POWER ON
Signal	Non-signal (Remove all input cables.)
Measurement Point	TP201 hole (Pin (79) of IC204)
Measuring Instrument	Frequency counter
Adjusting Element	CT401
Specified Value	f=4433619 ± 10 Hz

Connection:
1) Remove the power supply cord, and connect Pin ① and Pin ② of CN401 with a jumper wire.

Adjusting method:
1) Insert the power supply cord.
2) Adjust the decoder fsc frequency (f) to the specified value with CT401.
3) Remove the jumper wire.

8. INT Sync Generator Free-run Frequency Adjustment (VA-69 board)

Mode	POWER ON
Signal	Non-signal (Remove all input cables.)
Measurement Point	TP803 hole (Pin ⑤ of IC801)
Measuring Instrument	Frequency counter
Adjusting Element	CT601
Specified Value	f=4433619 ± 3 Hz

Adjusting method:
1) Adjust the encoder fsc frequency (f) to the specified value with CT601.

9. INT Sync Generator FH ERROR Adjustment (VA-69 board)

Mode	POWER ON
Signal	Non-signal (Remove all input cables.)
Measurement Point	TP662
Measuring Instrument	Digital voltmeter
Adjusting Element	CT604
Specified Value	A=2.5 ± 1.0 Vdc

Adjusting method:
1) Adjust the FH ERROR voltage (A) to the specified value with CT604.

10. AFC Error Adjustment (VA-69 board)

Mode	POWER ON
Signal	Non-signal (Remove all input cables.)
Measurement Point	TP650 hole (Pin ⑪ of IC605)
Measuring Instrument	Digital voltmeter
Adjusting Element	CT603
Specified Value	A=2.5 ± 0.1 Vdc

Note: Perform this adjustment more than 5 minutes after the power supply has been turned on (plug into the outlet).

Adjusting method:
1) Adjust the AFC error voltage (A) to the specified value with CT603.

11. AFH Phase Adjustment (VA-69 board)

Mode	POWER ON
Signal	Non-signal (Remove all input cables.)
Measurement Point	CH1: TP709 (Pin ① of IC612) CH2: TP663 (Pin ③ of IC616)
Measuring Instrument	Oscilloscope
Adjusting Element	RV602
Specified Value	T=2.5 ± 0.1 μsec

Adjusting method:

1) Adjust the phase difference (T) to the specified value with RV602.

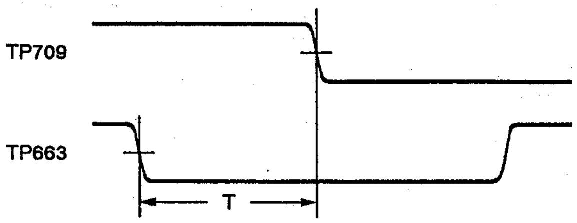


Fig. 9-19

12. U Adjustment (VA-69 board)

Mode	POWER ON
Signal	Color bar with white 100% (S video input)
Measurement Point	CH1: TP415 (Pin ⑤ of IC403) CH2: Pin ② of IC803
Measuring Instrument	Oscilloscope TRIGGER SOURCE: CH2
Adjusting Element	RV402, T401
Specified Value	1. A level is minimum 2. A=B ± 3 mV

Adjusting method:

1) Adjust the A level to minimum with RV402.
2) Adjust the level difference of A and B to minimum with T401.
3) Repeat steps 1) and 2).

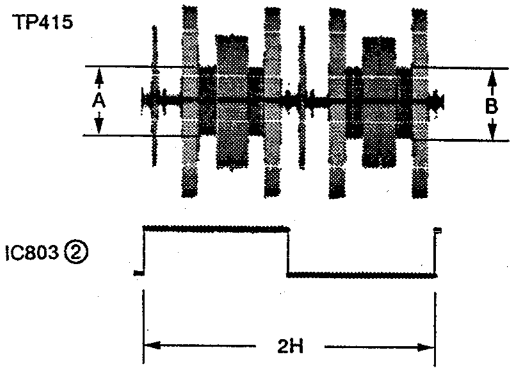


Fig. 9-20

13. Decoder PHASE/COLOR Adjustment (VA-69 board)

13-1. Decoder PHASE Adjustment

Mode	POWER ON, Through picture
Signal	Color bar with white 75% (S video input)
Measurement Point	TP414 (Pin ㊲ of IC403)
Measuring Instrument	Oscilloscope
Adjusting Element	RV401
Specified Value	"White (75%)", "Cyan", "Magenta", and "Blue" should be in line.

Adjusting method:

1) Line the levels of "White (75%)", "Cyan", "Magenta", and "Blue" up as shown in the figure with RV401.

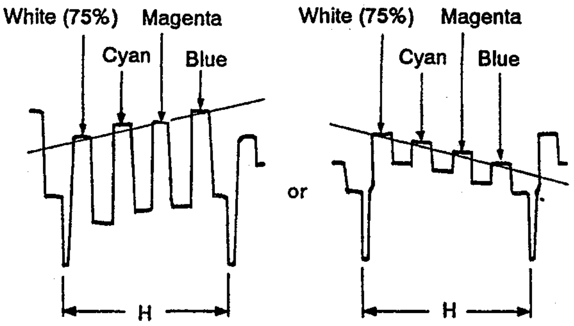


Fig. 9-21

13-2. Decoder Color Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 75% (S video input)
Measurement Point	TP414 (Pin ㊲ of IC403)
Measuring Instrument	Oscilloscope
Adjusting Element	RV403
Specified Value	"White (75%)", "Cyan", "Magenta", and "Blue" should be in a horizontal line.

Adjusting method:

1) Line the levels of "White (75%)", "Cyan", "Magenta", and "Blue" up horizontally with RV403. (If necessary, adjust RV404 finely as well.)

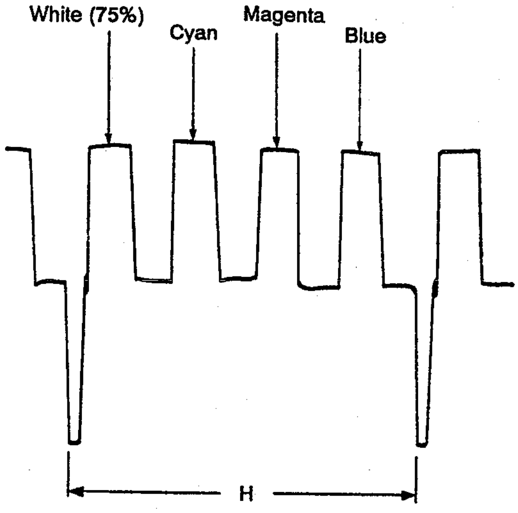


Fig. 9-22

14. Decoder Output Level Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	TP504 (Pin ⑦ of IC501)
Measuring Instrument	Oscilloscope
Adjusting Element	RV410
Specified Value	A=0.70 ± 0.03V

Adjusting method:

1) Set the [Auto picture] (AGC) switch to the "Off" position.
2) Adjust the white (100%) level (A) to the specified value with RV410.

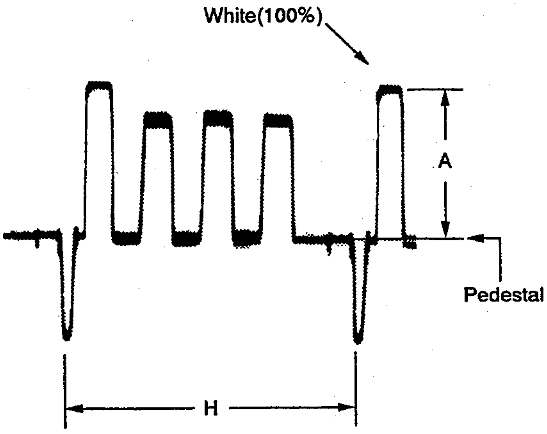


Fig. 9-23

15. AGC Level Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	TP504 (Pin ⑦ of IC501)
Measuring Instrument	Oscilloscope
Adjusting Element	RV409
Specified Value	A=0.70 ± 0.03V

Note: Do not adjust RV408.

Adjusting method:

1) Set the [Auto picture] (AGC) switch to the "On" position.
2) Adjust the white (100%) level (A) to the specified value with RV409.
3) Return the [Auto picture] switch to the "Off" position.

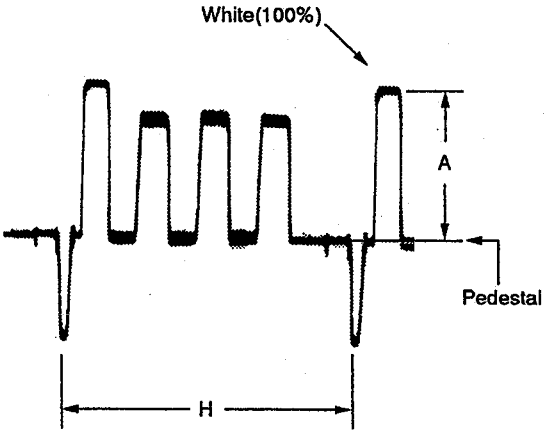


Fig. 9-24

16. CHROMA UP Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 75% (S video input)
Measurement Point	TP504 (Pin ⑦ of IC501)
Measuring Instrument	Oscilloscope
Adjusting Element	RV403
Specified Value	A=85 ± 15 mV

Adjusting method:

1) Adjust the level difference (A) of "White (75%)" and "Blue" to the specified value with RV403.

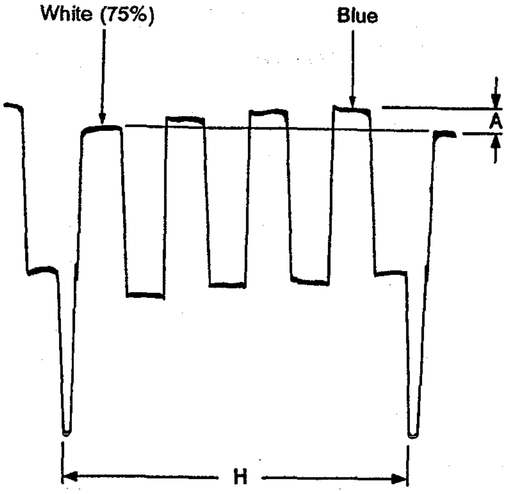


Fig. 9-25

17. Red Pedestal Level Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	TP506 (Pin ① of CN403)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV503
Specified Value	A=3.10 ± 0.03 Vdc^Note^

Note: The deviation for the pedestal levels of blue and green is below 0.03V.

Adjusting method:

1) Adjust RV504 to the mechanical center position.
2) Adjust the pedestal level (A) immediately after the V blanking period to the specified value with RV503.

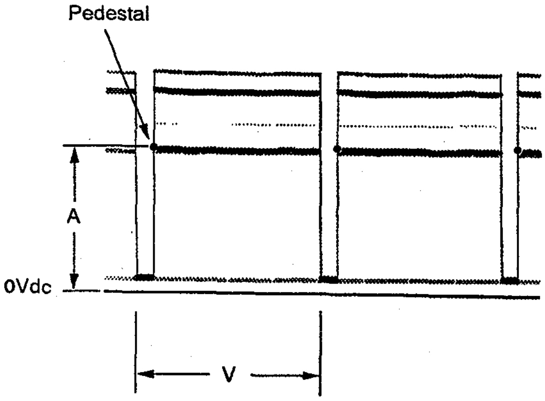


Fig. 9-26

18. Blue Pedestal Level Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	TP508 (Pin ⑤ of CN403)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV507
Specified Value	A=3.10 ± 0.03 Vdc$^{\text{Note}}$

Note: he deviation for the pedestal levels of red and green is below 0.03V.

Adjusting method:

1) Adjust RV508 to the mechanical center position.
2) Adjust the pedestal level (A) immediately after the V blanking period to the specified value with RV507.

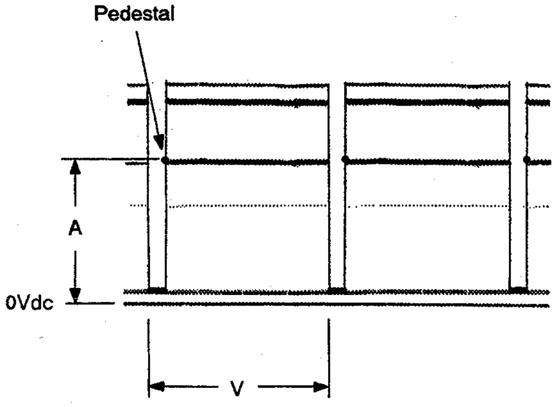


Fig. 9-27

19. Green Pedestal Level Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	TP507 (Pin ③ of CN403)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV505
Specified Value	A=3.10 ± 0.03 Vdc$^{\text{Note}}$

Note: The deviation for the pedestal levels of red and blue is below 0.03V.

Adjusting method:

1) Adjust RV506 to the mechanical center position.
2) Adjust the pedestal level (A) immediately after the V blanking period to the specified value with RV505.

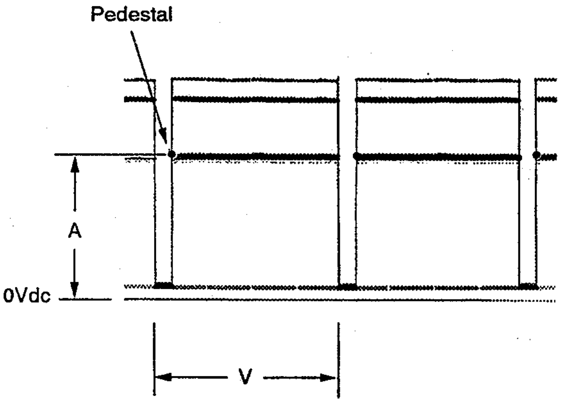


Fig. 9-28

20. Green Bright Level Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	1. Pin ⑧ of CN403 2. TP507 (Pin ③ of CN403)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV502
Specified Value	A=VMRB level ± 0.02 Vdc

Adjusting method:

1) Connect the oscilloscope to Pin ⑧ of CN403, and check the VMRB level (approx. 3.1 Vdc).
2) Connect the oscilloscope to TP507 (Pin ③ of CN403) next.
3) Equalize the pedestal level (A) immediately before the horizontal sync signal to the VMRB level with RV502.

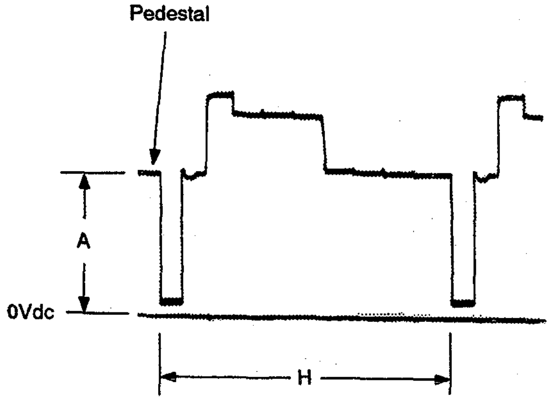


Fig. 9-29

21. Green Picture Level Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	TP507 (Pin ③ of CN403)
Measuring Instrument	Oscilloscope
Adjusting Element	RV501
Specified Value	A=1.80 ± 0.02 Vdc

Adjusting method:

1) Adjust the level difference (A) between the picture level (White (100%)) and pedestal to the specified value with RV501.

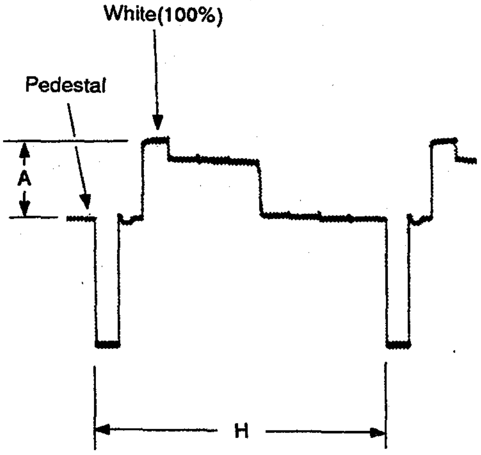


Fig. 9-30

22. S/V Ratio Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	TP118 (Terminate the Y terminal of the S video output of CNJ101 at 75Ω)
Measuring Instrument	Oscilloscope
Adjusting Element	Picture level: RV707 SYNC level: RV706
Specified Value	Picture level: 700 ± 20 mV SYNC level: 300 ± 10 mV

Adjusting method:

1) Check that the Memory picture lamp is lit out.
2) Adjust the picture level (A) to the specified value with RV707.
3) Adjust the SYNC level (B) to the specified value with RV706.
4) Repeat steps 2), and 3).

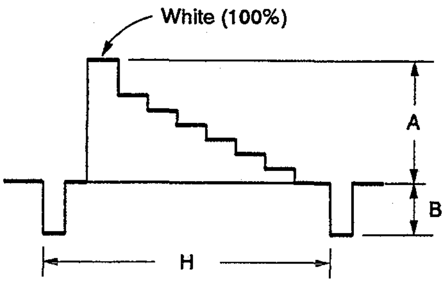


Fig. 9-31

23. Black/White Balance and Carrier Balance Adjustments (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope (Terminated at 75Ω)
Adjusting Element	Black/white balance: RV801, 803 Carrier balance: RV805, 806
Specified Value	The black, white and carrier balance luminance points should coincide with the origin point.[Note]

Note: The luminance point should be within the circumference of a circle with a diameter of 4 mm, and whose origin is taken to be its center.

Adjusting method:

1) Check that the Memory picture lamp is lit out.
2) Adjust the vectorscope GAIN to maximum.
3) Coincide the black and white luminance points to the carrier balance luminance point with RV801 and 803.
4) Coincide the carrier balance luminance point to the vectorscope origin point with RV805 and 806.
5) Repeat steps 3) and 4).

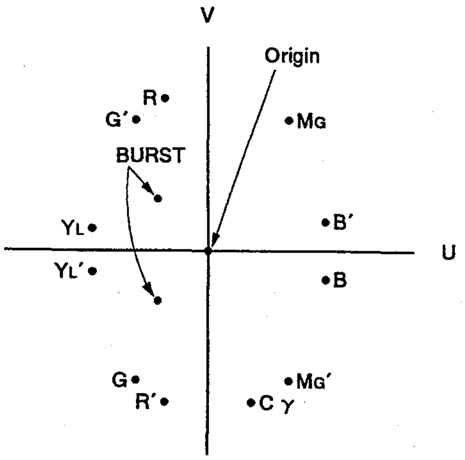


Fig. 9-32

24. Burst Level Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	Video output terminal
Measuring Instrument	Vector scope (Terminated at 75Ω)
Adjusting Element	RV809, CT801
Specified Value	75% burst standard position

Adjusting method:

1) Adjust RV807 to the mechanical center position.
2) Adjust the GAIN of the vectorscope to the CAL position.
3) Adjust the burst luminance point to the 75% standard position with RV809 and CT801.

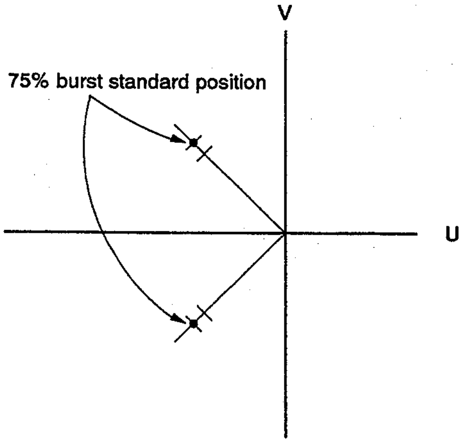


Fig. 9-33

25. B–Y, R–Y Level Adjustments (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar (S video input)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope (Terminated at 75Ω)
Adjusting Element	B–Y level: RV802 R–Y level: RV804
Specified Value	Each color luminance point of blue, yellow, green, and magenta should be within the specified frame.[Note]

Note: The center of luminance point should be within the rim of the frame. (Frame of ± 10 °, ± 10%)

Adjusting method:

1) Check that the Memory lamp is lit out.
2) Adjust the GAIN of the vectorscope to the CAL position.
3) Adjust RV802 so that blue and yellow luminance points are within the specification of the vectorscope.
4) Adjust RV804 so that the green and magenta luminance points are within the specified frame of the vectorscope.
5) Repeat steps 3) and 4).

26. Chroma Level Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	TP121 (Terminate the S video chroma output terminal of CNJ101 at 75Ω)
Measuring Instrument	Oscilloscope
Adjusting Element	RV807
Specified Value	A=300 ± 10 mV

Adjusting method:

1) Adjust the burst level (A) to the specified value with RV807.

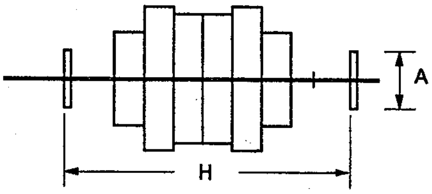


Fig. 9-34

27. Burst Position Adjustment (VA-69 board)

Mode	POWER ON, Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	TP124
Measuring Instrument	Oscilloscope
Adjusting Element	RV601
Specified Value	T=5.60 ± 0.1 μsec

Adjusting method:

1) Adjust the burst position (T) to the specified value with RV601.

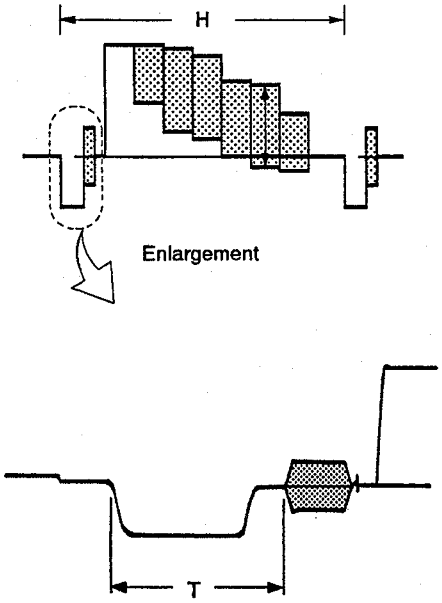


Fig. 9-35

28. OSC Adjustment (MC-80 board)

Mode	POWER ON
Signal	Arbitrary
Measurement Point	CC508 (Pin ① of IC513)
Measuring Instrument	Frequency counter
Adjusting Element	CT501
Specified Value	f=14.31818 MHz ± 10 Hz

Adjusting method:

1) Adjust the oscillation frequency (f) to the specified value with CT501.

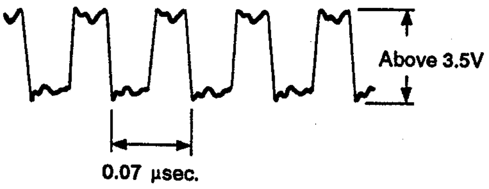


Fig. 9-36

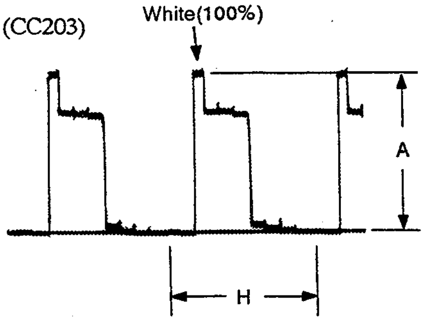
29. G Channel D/A Output Adjustment (MC-80 board)

Mode	POWER ON, Memory picture
Signal	Color bar with white 100% (S video input)
Measurement Point	CC203 (Pin ③ of W2:MVG)
Measuring Instrument	Oscilloscope External trigger: CC518 (Pin (59) of IC508: HD) Trigger slope: –
Adjusting Element	RV401
Specified Value	A=0.90 ± 0.01V

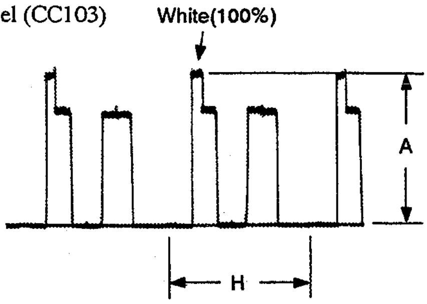
Adjusting method:

1) Set the Auto picture (AGC) switch to the "Off" position.
2) Select "Standard" at "Picture quality adjustment" of the menu display, and execute.
3) Press the CAPTURE button, and record the signal in the memory.
4) Adjust the G channel signal level (A) to the specified value with RV401.
5) Check that the R channel signal level (A) of CC103 (Pin ① of W2: MVR) and B channel signal level (A) of CC303 (Pin ⑤ of W2: MVB) satisfy the specified value.

G channel (CC203)



R channel (CC103)



B channel (CC303)

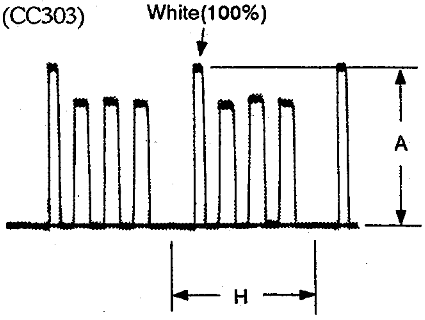


Fig. 9-37

30. Memory Signal Level Adjustment (VA-69 board)

Mode	POWER ON, Memory picture/ Through picture
Signal	Color bar with white 100% (S video input)
Measurement Point	Oscilloscope TP707 Vectorscope (Terminated at 75Ω) Video output terminal
Measuring Instrument	
Adjusting Element	R: RV701 G: RV702 B: RV703
Specified Value	Oscilloscope Level difference with the through signal=0 ± 5 mV Vectorscope The white balance luminance point should coincide with the origin point.

Adjusting method:

1) Set the Auto picture (AGC) switch to the "Off" position.
2) Select "Standard" at "Picture adjustment" of the menu display, and execute.
3) Press the CAPTURE button, and record the signal in the memory.
4) Minimize the level difference between the memory signal and through signal of TP707 (G channel) with RV702.
   Note: The memory signal and through signal can be switched using the SOURCE/MEMORY button. During memory signal output, the Memory lamp is lit.
5) Select the memory picture.
6) Adjust the GAIN of the vectorscope to maximum.
7) Rotate RV701 and RV703 alternately, and coincide the white balance luminance point to the origin point of the vectorscope.
8) Return the GAIN knob of the vectorscope to the CAL position, and check the position of each luminance point.
   Blue luminance point: ± 5% position
   Other luminance point: ± 10% position

TP707 (G channel)

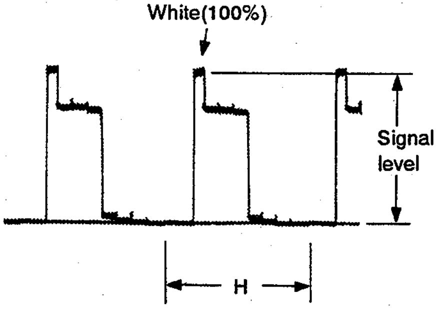
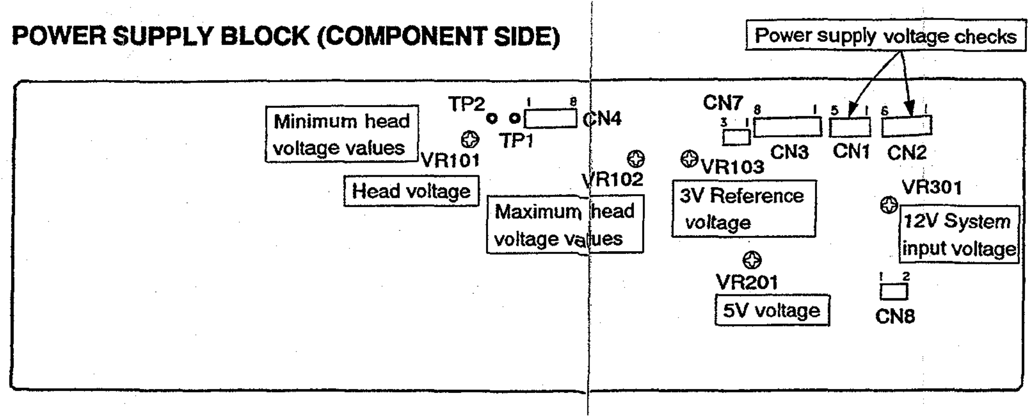


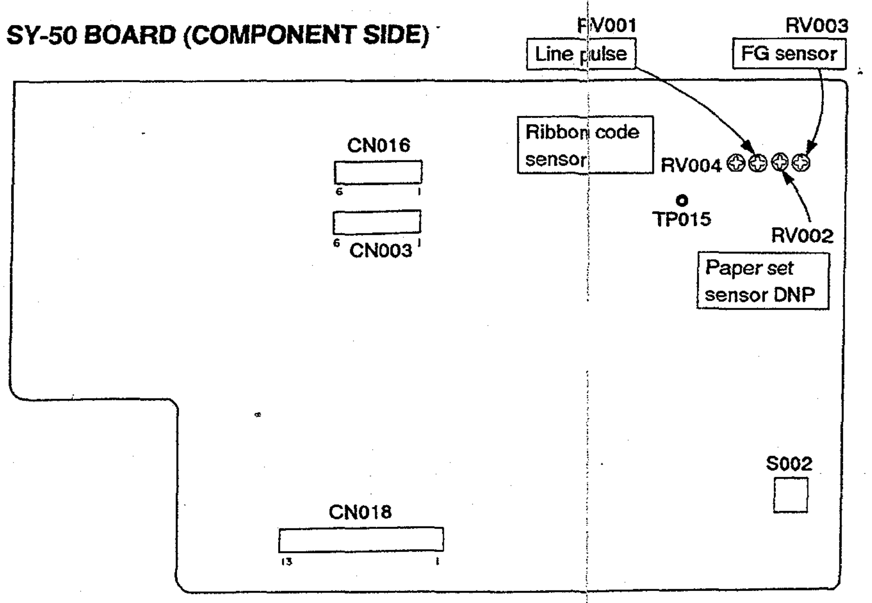
Fig. 9-38

9-5. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

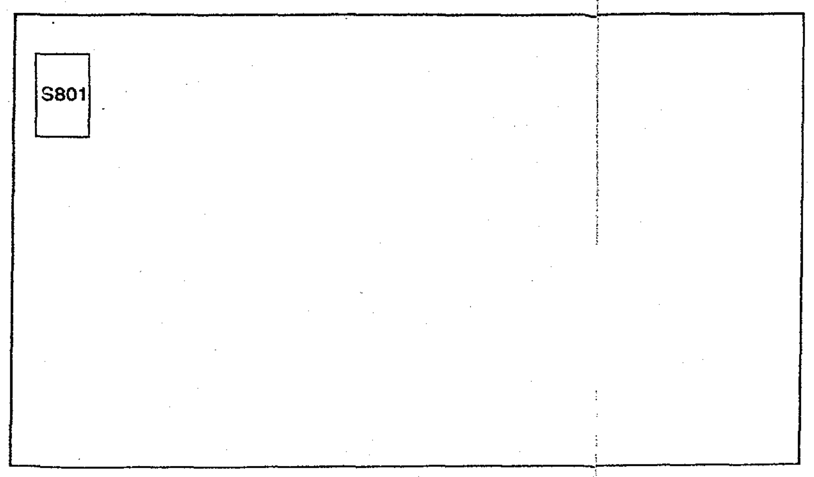
POWER SUPPLY BLOCK (COMPONENT SIDE)


Power supply voltage checks
Minimum head voltage values
TP2
TP1
CN4
VR101
Head voltage
VR102
Maximum head voltage values
CN7
CN3
CN1
CN2
VR103
3V Reference voltage
VR301
12V System input voltage
VR201
5V voltage
CN8

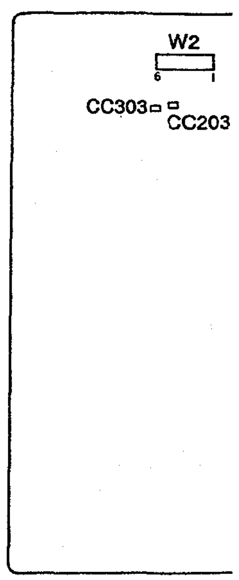
SY-50 BOARD (COMPONENT SIDE)


RV001
Line pulse
RV003
FG sensor
Ribbon code sensor
RV004
TP015
RV002
Paper set sensor DNP
CN016
CN003
CN018
S002

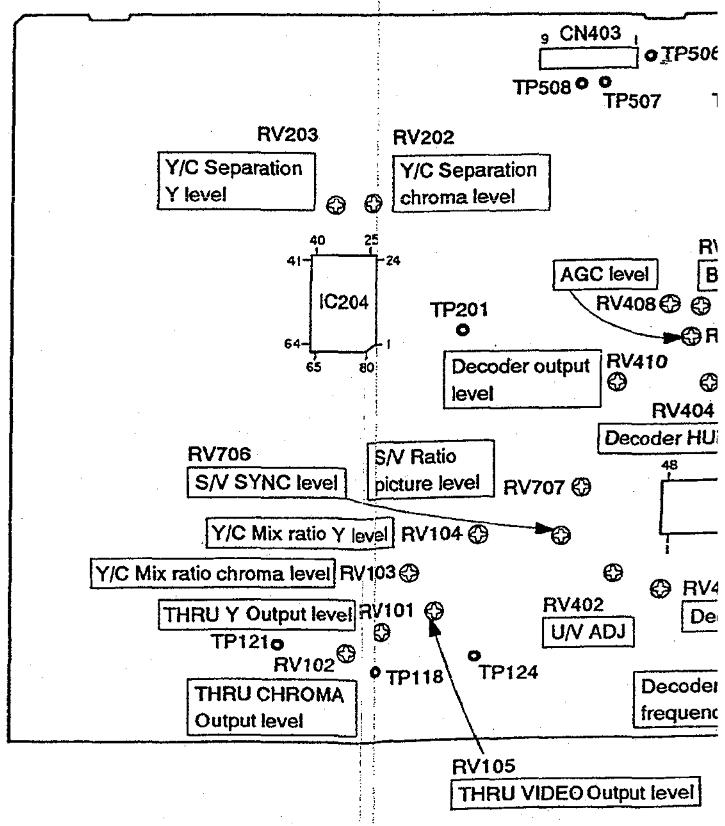
HC-10 BOARD (COMPONENT SIDE)



MC-80 BOARD (CO

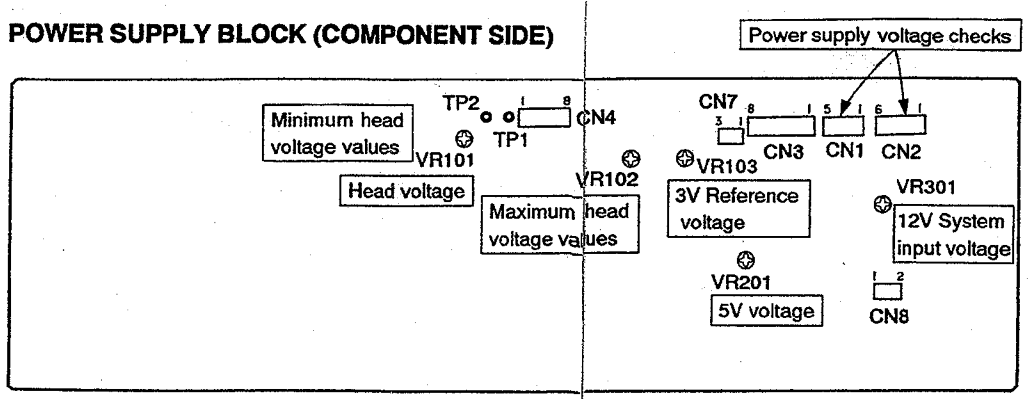

W2
CC303
CC203

VA-69 BOARD (COMPONENT SIDE)

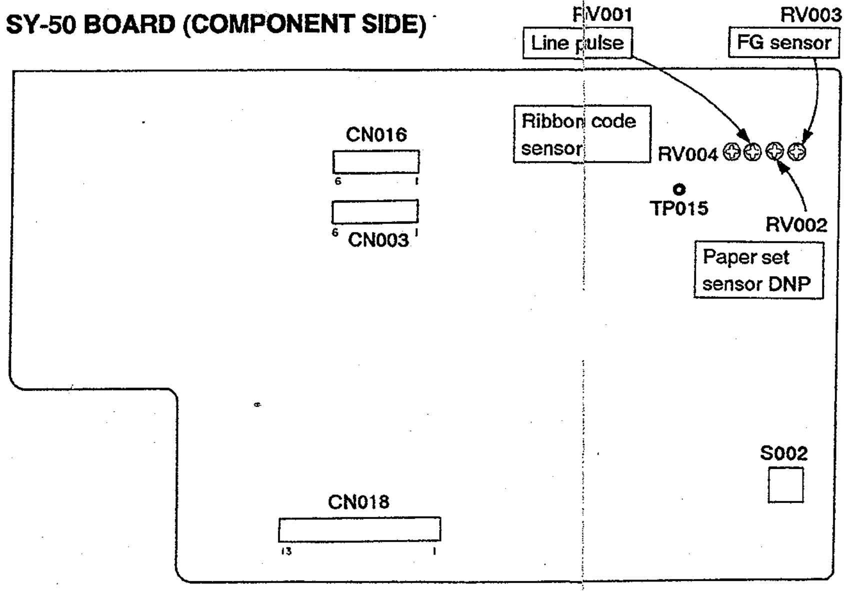

CN403
TP506
TP508
TP507
RV203
Y/C Separation Y level
RV202
Y/C Separation chroma level
IC204
TP201
AGC level
RV408
RV410
Decoder output level
RV404
Decoder HU
RV706
S/V SYNC level
S/N Ratio picture level
RV707
Y/C Mix ratio Y level
RV104
Y/C Mix ratio chroma level
RV103
THRU Y Output level
RV101
TP121
RV102
THRU CHROMA Output level
TP118
TP124
RV402
U/V ADJ
Decoder frequenc
RV105
THRU VIDEO Output level

9-5. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

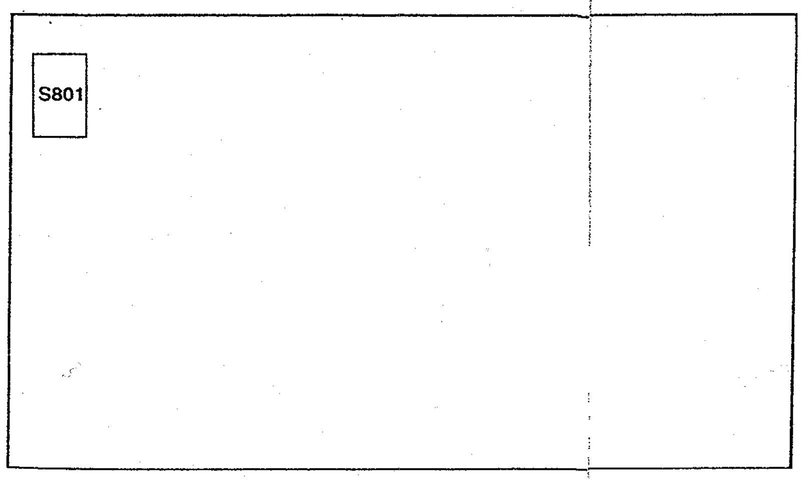
POWER SUPPLY BLOCK (COMPONENT SIDE)


Power supply voltage checks
Minimum head voltage values
TP2
TP1
CN4
VR101
Head voltage
VR102
Maximum head voltage values
CN7
CN3
CN1
CN2
VR103
3V Reference voltage
VR301
12V System input voltage
VR201
5V voltage
CN8

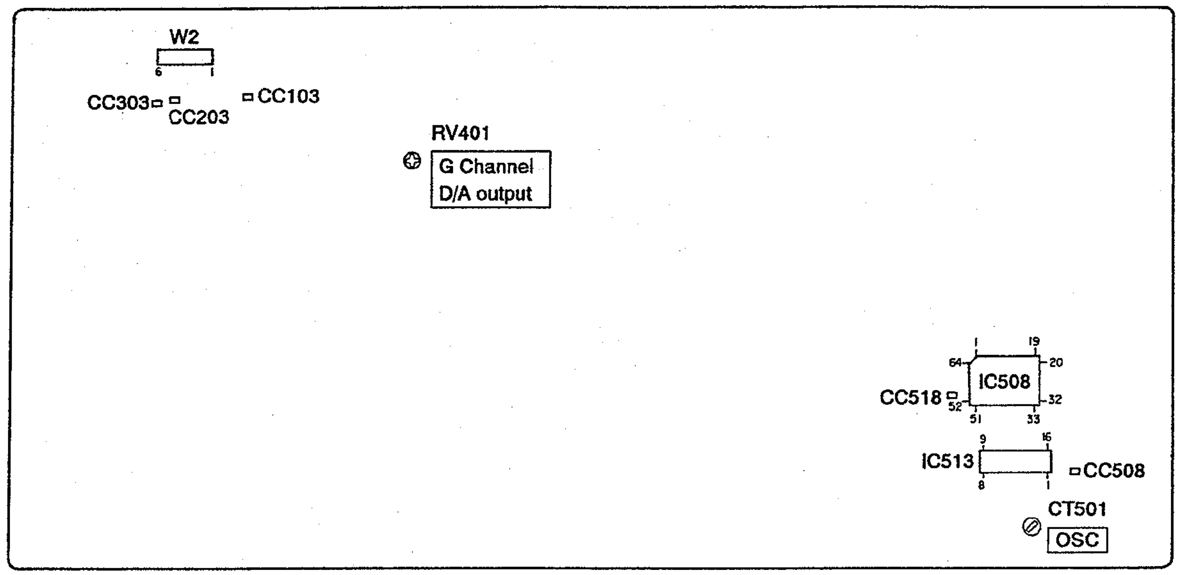
SY-50 BOARD (COMPONENT SIDE)


RV001
Line pulse
RV003
FG sensor
CN016
Ribbon code sensor
RV004
TP015
RV002
Paper set sensor DNP
CN003
S002
CN018

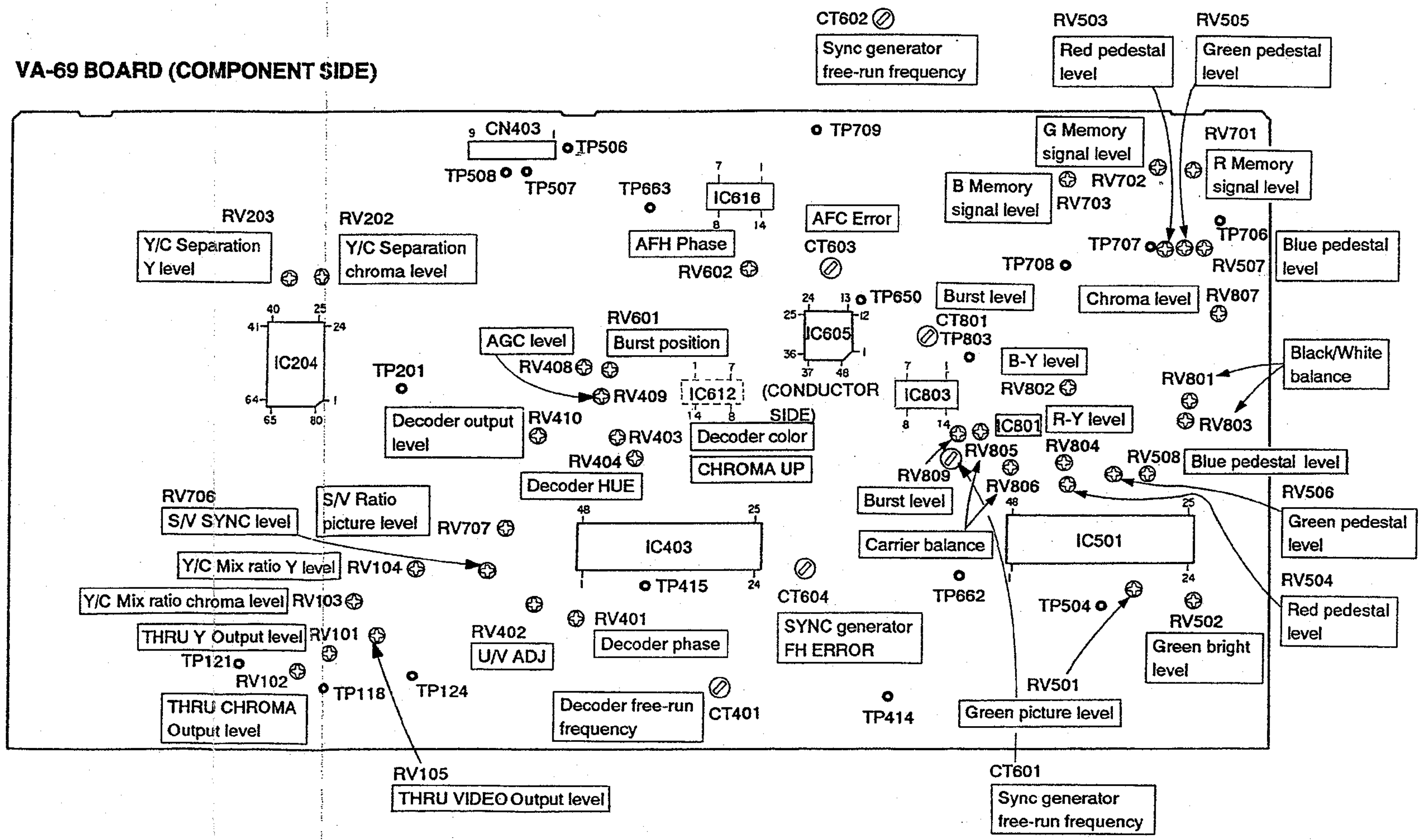
HC-10 BOARD (COMPONENT SIDE)



MC-80 BOARD (COMPONENT SIDE)


W2
CC303
CC203
CC103
RV401
G Channel D/A output
IC508
CC518
IC513
CC508
CT501
OSC

VA-69 BOARD (COMPONENT SIDE)


CT602
Sync generator free-run frequency
RV503
Red pedestal level
RV505
Green pedestal level
CN403
TP506
TP508
TP507
TP709
G Memory signal level
RV701
R Memory signal level
RV702
B Memory signal level
RV703
TP663
IC616
AFC Error
CT603
RV203
Y/C Separation Y level
RV202
Y/C Separation chroma level
AFH Phase
RV602
TP707
TP706
Blue pedestal level
RV507
TP708
TP650
Burst level
Chroma level
RV807
IC204
RV601
Burst position
IC605
CT801
TP803
AGC level
RV408
TP201
RV409
IC612
(CONDUCTOR SIDE)
IC803
B-Y level
RV802
RV801
Black/White balance
RV803
Decoder output level
RV410
RV403
Decoder color
IC801
R-Y level
RV805
RV804
RV404
Decoder HUE
CHROMA UP
RV809
RV806
RV508
Blue pedestal level
RV706
S/N SYNC level
S/N Ratio picture level
RV707
Burst level
RV506
Green pedestal level
IC403
Carrier balance
IC501
Y/C Mix ratio Y level
RV104
TP415
CT604
TP662
RV504
Red pedestal level
Y/C Mix ratio chroma level
RV103
RV401
TP504
SYNC generator FH ERROR
RV502
Green bright level
THRU Y Output level
RV101
RV402
Decoder phase
TP121
U/V ADJ
RV102
TP118
TP124
THRU CHROMA Output level
Decoder free-run frequency
CT401
TP414
RV501
Green picture level
RV105
THRU VIDEO Output level
CT601
Sync generator free-run frequency